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BY PECK

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Approved

L. O. OVERHOLTS

Contribution from the Department of Botany
The Pennsylvania State College
No. 15


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THE SPECIES OF PORIA DESCRIBED BY PECK

BY L. O. OVERHOLTS

The genus *Poria* of the Polyporaceae has long presented to mycologists an unsolved problem. In the broadest sense it includes all resupinate pore fungi, without regard to the color of the fruiting body or spores, the hymenial configuration, or whether annual or perennial. We are more accustomed to think of it, however, as including only those entirely resupinate species which otherwise would be referred either to *Polyporus* or *Fomes* as those genera have been limited by the writer within the last few years.

Dr W. A. Murrill of the New York Botanical Garden in 1908 brought together in the North American Flora, descriptions of a considerable number of those *Porias* with brown context, including a number of species described as new. Unfortunately in several cases the spore characters there recorded have proved to be erroneous. Aside from this publication no attempt has been made in this country at anything approximating a revision or a monograph of the genus in question. It is a problem, moreover, that will require several years of close and patient study before it can be adequately solved. For several years past the writer has paid special attention to this group of fungi, and consequently has accumulated a large assortment of collections, both through his own endeavors and through the sendings of others. Of late, a large amount of time has been spent in painstaking study to determine those characters which in this group of fungi should be regarded as of specific importance. As the work has progressed it has become more and more evident that the number of described species must be materially increased before the end is in sight. Scarcely a single consignment is received from correspondents in which there is not found one or more collections that are apparently sufficiently different from those previously studied to constitute distinct species. From no locality has this been so true as from the far northwest, where extensive collections have been made by Dr J. R. Weir.

In view of these facts it has seemed advisable that the problem be attacked from a slightly different angle. As a consequence, the present paper is offered as a contribution to a better knowledge of the taxonomy of this group of fungi. During his services as State Botanist of New York, Dr C. H. Peck described about twenty species of resupinate pore fungi, now referred, for the most part,

to the genus *Poria*. The first of these was described in 1873. At that time and for many years thereafter mycologists apparently failed to grasp the idea that the higher fungi include a very large and varied assortment of closely related species. As a consequence they were apparently possessed of the idea that superficial characters were sufficient for the determination of species in most if not all cases.

As time has passed the need of microscopic characters in certain groups of fungi has been more and more emphasized until we are in danger of going too far to the other extreme and underemphasizing the importance of external form, coloration etc. In an effort to overcome the former of these tendencies the writer has undertaken a thorough investigation of the material left by Peck as representing the species he described. It has not been the writer's intention to pass judgment on the validity of these species but merely to supplement Peck's often meager descriptions with additional facts concerning characteristics not recognized by him.

The need of such a paper will be appreciated by those who have tried to fit their collections to the descriptions left by Peck. In some instances his description occupies less than three lines of printed matter. Most of them contain no mention of spores or other hymenial structures and these are often among the most useful characters that a plant will show. In preparing the paper it has been necessary to decide to what extent detail is necessary, and where general statements will suffice. In this the writer has been guided by his own experience in matching collections in the herbarium. Characters which have proved useless have been omitted. For example, it has been deemed unnecessary to state the thickness of the subiculum in microns when millimeters or fractions thereof will suffice. Neither is the thickness of the dissepiments nor the diameter of the tubes given in microns. The former is too much a question of age and maturity and is covered in sufficient detail in the statements regarding the size of the tubes in millimeters. It is possible, however, that forty years hence the descriptions here presented by the writer will be deemed as inadequate as are at the present time those published by workers forty years ago.

The presentation of each species conveniently divides itself into four sections.

1 Peck's description is reproduced exactly as it was published and is headed *Original description*. The reason for this is two-

fold. First, it brings together in one paper all of Peck's descriptions of *Porias* — a convenience that will be appreciated by those who have had to turn from one report to another to locate them. Second, it enables the student to see at a glance what in this paper has been added to each of Peck's descriptions.

2 A section has been headed *Notes* and contains a more extended account of the present condition of the type collection, characters not included by Peck, explanation of discrepancies of one form or another where such occur, and observations on the distinguishing characteristics and probable relationships of the species.

3 The characters brought out in the two preceding sections are combined into a technical *Redescription*. This of course, involves repetition, but it puts into a paragraph a concise description of each species and makes it available for future use.

4 Each species is illustrated as fully as material permits. Three types of illustrations are used. (a) Natural size photographs (unless otherwise noted) of at least a part of the material in the type collection. Where possible this material was chosen so as to show as wide a range as possible in the variations of the species. In some instances material is extremely scanty and the results more or less unsatisfactory. (b) Microphotographs of sections through the hymenium of each species. Wherever possible these are from cross-section preparations but in a few cases the tubes were so short that vertical sections were resorted to. In passing judgment on these microphotographs it should be borne in mind that they are from free-hand sections, made by the writer, and cut and mounted as described in a previous paper (*Ann. Missouri Botanical Garden*, 2: 676. 1915), but stained in a 1 per cent solution of water eosin. The mounts were made in 66 per cent glycerine to which a few drops of a 10 per cent solution of acetic acid had been added. The acid prevents the glycerine from extracting the stain from the sections. It should also be remembered that the dried material from which these sections are made has been in the herbarium for as many as forty years in some cases, and moreover that in some cases type material is extremely scanty and is too valuable to be diminished to any extent by continued sectioning in an attempt to obtain a section of extreme thinness. It is hoped, however, that these sections will show in a suitable manner the relative size of the pores, the relative compactness of the dissepiments, and the cystidia, where such are present. These photographs are all magnified to the same extent, namely, about 160 diameters unless otherwise indicated, and consequently are directly comparable

one with another. (c) Line drawings of spores and hyphae made with the aid of a camera-lucida, and consequently comparable with one another in point of magnification. Special attention has been directed to the diameters of the hyphae, the presence or absence of clamp connections, the character of the branching if present, and the presence or absence of cross walls. Just how many of these points will eventually prove to have diagnostic value is not known at present. Unless otherwise stated, the hyphal characters given apply to those of both the trama (dissepiments) and of the subiculum. They have been obtained from teased preparations as described in the earlier article referred to.

A word of explanation may not be amiss regarding the writer's use of the terms *trama*, *dissepiments* and *subiculum*. The first two terms are used nearly synonymously but a more or less superficial shade of meaning has been maintained. The walls of the tubes, at the surface of the hymenium (that is, at the mouths of the tubes) are designated as the dissepiments as they are seen with the naked eye or by the use of a hand lens. Thus one speaks of the comparative thickness or thinness, the color, or the pubescence of these dissepiments. The interior of these dissepiments is designated trama, and of course its structure is invisible except under the microscope. Thus the writer speaks of the characteristics of the hyphae of the trama, meaning those hyphae (exclusive of basidia, paraphyses or cystidia) of which the dissepiments are composed and from which the hymenial elements are produced. The term subiculum is used to designate that layer of hyphae from which the tubes arise. There may thus be a subiculum before the tubes are produced, and in most cases it persists after they are well formed, as a thin layer separating the tubes from the substratum.

The color terms used in the writer's *Notes* and *Redescriptions* of the various species (except where credited to Peck) are those of Ridgway's Color Standards and Color Nomenclature, 1912 edition. In order to follow closely the exact shade of meaning of the various terms used access to a copy of this book is a necessity. In determining the colors shown by these fungi at present it is well to bear in mind that specimens mounted on a herbarium sheet (as many of Peck's types are) present a serious obstacle which may express itself in discrepancies in applying the color terms of the manual. This is because it is impossible to bring into close proximity a given specimen on such a sheet and the representation of any particular color shown in the book. Even if determined accurately, the possibility of considerable color variation in the plants on drying

is not excluded. It is often possible to take a herbarium specimen, wet it in water and dry it out again, and have it present quite a different shade of color from the one it first possessed.

The writer desires to make the following acknowledgments for help of various kinds in the preparation of the paper: To Dr H. D. House, the New York State Botanist, who on several occasions has put Doctor Peck's *Poria* collection at the writer's disposal and who through his generous concessions has made possible the present form of the paper; to Prof. C. R. Orton, of State College, Pa., for suggestions and criticisms of the manuscript; to E. T. Kirk, of State College, Pa., for his painstaking and patient endeavors to secure the best possible microphotographs from the sections supplied; and to others who have aided in various ways.

Poria attenuata (Peck) Cooke

Plate 1, figures 1-6; plate 2, figures 1-2

Grevillea, 14: 110. 1886.

Polyporus attenuatus Peck, Buffalo Soc. Nat. Sci. Bul. 1, p. 61. 1873. 26th Rep't N. Y. State Mus., p. 70. 1874.

Original description. Resupinate, effused, very thin, separable from the matrix, pinkish-ochre, the margin whitish; pores minute, subrotund, with thin acute dissepiments.

Prostrate trunks of deciduous trees. Croghan. September.

The pores are scarcely visible to the naked eye.

Notes. This is the first species of *Poria* described by Peck, and the description is extremely meager. Fortunately, the species is rather common in the eastern United States and its characters easily recognized. The type collection is quite small, consisting of only four small fragments less than 6 cm long and 2 cm broad. One of these is reproduced in plate 1, figure 7. These specimens do not have the exact coloration typical of most collections seen by the writer, but all are alike in microscopic structure.

The plants are annual, thin, and separate rather easily from the substratum. The color of the hymenial surface of the type collection is near vinaceous buff or avellaneous. In other collections, however, the color is light pinkish cinnamon to light ochraceous salmon. Sometimes darker colors, approaching cinnamon, are met with. In one especially light-colored collection made by the writer the hymenium when fresh was light buff or cream color. In all cases the fructifications are surrounded, at least in part, by a narrow, white, finely pubescent or nearly glabrous margin, less than

1 millimeter broad, as shown in plate 1, figure 1. This margin is fairly regular, and not fimbriate. The thickness of the hymenium-producing region in dried plants is about half a millimeter in the types but in other collections as much as 3 mm. This thickness is made up of a very thin but conspicuous subiculum and the rather short tubes. The mouths of the tubes are angular or subangular and with a diameter of 5 to 6 to the millimeter. The dissepiments are rather thin but remarkably entire. The hymenium often and perhaps typically shows a decided silky luster when viewed in oblique positions.

The spores are ellipsoidal or inclined to elliptical and hyaline (plate 1, figure 2). They are 3 to 4 μ long and 2 to 3 μ broad. There are many conspicuous encrusted cystidia in the hymenium, but in some collections they appear to remain embedded in the tramal tissue and not project beyond the basidia. In other collections they project very conspicuously (plate 2, figure 1a) and usually obliquely into the lumen of the tubes. They are best seen in vertical sections of the hymenium as shown in plate 2, figure 2. In cross sections they are often to be identified only by their cross section views (plate 2, figure 1-b) as even where they do project into the tubes they do so obliquely and so are cut crosswise in such sections. In macerated or teased preparations their true nature is easily made out. They are simply the enlarged and encrusted ends of ordinary hyphae as shown in plate 1, figures 3 and 4. They measure 60 to 80 μ in length and are 7.5 to 10 μ thick. The hyphae of the trama and the subiculum are rather compactly arranged, and are colorless, only rarely branched, sometimes quite flexuous though ordinarily only moderately so, and no cross walls are visible. They vary in diameter from 2 to 4 μ . There are no clamp connections (plate 1, figures 5 and 6).

Lloyd has stated (Mycological Notes, 2: 374. 1908) that this species is the same as *Poria eupora* Karsten. From unauthenticated specimens I have seen I am of the same opinion. Also *P. nitidus* A. & S. (ex Egeland, Norsk. Res. Poresv. p. 151) is apparently a closely related species. *Poria myceliosa* and *Poria fimbriatella*, both described by Peck, are somewhat similar but of different coloration and with smaller spores. Also the former species is without cystidia and has distinct cross walls and clamp connections in the hyphae.

Poria attenuata appears to be quite frequent in the eastern United States, but among a large series of western collections from various localities and different collectors this fungus has not

been found. It is known to grow on witch hazel, oak, maple, and alder, and S. H. Burnham says he finds it frequently in New York on basswood and ironwood. Several collections were made by the writer in New Hampshire in the summer of 1918. Its decaying effect seems to be very slow and long drawn out.

Redescription. Effused for several centimeters on wood or bark, annual, separable, thin (less than 1 mm), more or less surrounded by a thin, narrow, white, slightly pubescent border not more than 1 mm broad; subiculum thin but conspicuous, light colored; tubes less than .5 mm long in dried plants, their mouths pinkish ochre (fide Peck) to light buff, light pinkish cinnamon, or light ochraceous salmon when fresh, not much changed on drying though sometimes inclining to cinnamon, usually glistening, more or less angular, thin walled but entire, averaging 5 to 6 to a millimeter; spores ellipsoidal or slightly elliptical, hyaline, 3 to 4 x 2 to 3 μ ; cystidia abundant, sometimes mostly embedded but more often conspicuously and obliquely projecting, hyaline, encrusted, 60 to 80 x 7.5 to 10 μ ; trama and subiculum compact, of hyaline, thin-walled, nearly simple hyphae, 2 to 4 μ in diameter, apparently without cross walls; clamp connections lacking.

On dead wood and bark of deciduous trees.

Type locality: Croghan, N. Y. C. H. Peck. Rather widely distributed through the eastern states as far west as Missouri.

Poria attenuata var. *subincarnata* Peck

Plate 2, figures 3-6

48th Rep't N. Y. State Mus., p. 118 (Bot. ed. 20). 1896.

Original description. This differs from the typical form in the paler color of the pores. It grows on hemlock bark and forms small patches rarely more than 1 inch in diameter. N. Y. Sept. Shear.

Notes. This, originally described as a variety of *Poria attenuata*, is a distinct species. It has little resemblance to that species except in its thickness and in the size of the pores. It grew on the bark of hemlock, while the typical species, so far as known, is confined to deciduous wood. Its color is considerably different from that species, and the spores (plate 2, figure 4) are allantoid, while those of the species are ellipsoidal. In some respects it is similar to resupinate forms of *Polyporus semipileatus* Peck, but appears to differ somewhat from that species. The writer is certain that the plant is not a variety of *Poria atten-*

uata, but is not ready to suggest any other disposition of it at present. The type collection contains but a few small fragments of the plant (plate 2, figure 3). An excellent collection of this plant was obtained by the writer in New Hampshire in 1918.

Redescription. Effused, annual, probably separable, with a narrow, white, pubescent margin about .5 mm broad; subiculum extremely thin, whitish; tubes less than .5 mm long, their mouths light buff to tulle buff at present, apparently somewhat incarnate when fresh, subangular, rather thin-walled, averaging 5 to 6 to the millimeter, entire, or gaping in oblique situations, the hymenium considerably cracked when dry; spores allantoid, hyaline, 4 to 5 x 1 μ ; cystidia none, but large subcylindrical pegs of hyphae project at irregular intervals into the lumen of the tubes; trama and subiculum compact, of hyaline, thin-walled hyphae 2 to 3.5 μ in diameter, rarely branched, some heavily encrusted with coarse crystals but mostly smooth; cross walls not conspicuous and in many hyphae apparently lacking; clamp connections lacking.

On fallen branches of *Tsuga canadensis*.

Type locality: Alcove, N. Y., C. L. Shear. Also in New Hampshire.

Poria aurea Peck

Plate 3, figures 1-4; plate 4, figures 1-2

43d Rep't N. Y. State Mus., p. 21. 1890.

Original description. Effused, forming patches of several inches in extent, 2 to 3 lines thick, separable from the matrix, golden yellow; subiculum thin, subgelatinous, the young margin byssoid or fimbriate, greenish yellow, soon disappearing; pores small, subrotund, elongated, the dissepiments thin, rather soft; spores minute, subelliptical, .00016 to .0002 in. long .0008 to .00012 broad.

Decaying wood of maple, *Acer saccharinum*. Sevey.

Apparently closely related to *Poria xantha*, but separable from the matrix and remarkable for its somewhat gelatinous subiculum. It is an attractive species.

Notes. Considerable confusion exists as to this species. The herbarium sheet at Albany contains three different collections. The specimens marked types are four in number. According to the original description, the type collection was made at Sevey, N. Y., in July, from the wood of *Acer saccharinum*, and the single label on the herbarium sheet records that as the substratum. But the other two collections are both from wood of coniferous trees and one of them agrees in all respects with the specimens on

Acer. This one was collected on pine wood at Ithaca, N. Y., by G. F. Atkinson and is referred to by Peck in Report 51: 299. 1898. The other collection is from pine bark and is quite different, agreeing very well with specimens of *Poria subacida*. There is also one collection in a herbarium box, from C. H. Fairman, Lyndonville, N. Y., on hemlock, October 1910, referred by Peck as "*Poria aurea* — *Myriadoporus* form." These specimens do not agree with the types and are not considered as that species. Several facts warrant the conclusion that the specimens from *Acer* should be regarded as the types. Among these may be mentioned the fact that in the original description, Sevey is given as the type locality and this locality was evidently the one first written on the herbarium label. The locality of the Ithaca collection evidently was noted at another time and perhaps by a different person, as the handwriting seems different. No locality is given for the collection from pine bark. The specimens on *Acer* are distinct from any other of Peck's species and are different from any species known to the writer.

The largest specimen is 10 cm long and 4 cm broad but is incomplete. The color of the hymenial surface in these specimens is between cartridge-buff and honey yellow. Mature specimens have no sterile margin but more immature ones sometimes have a very narrow white margin which is not, however, uniformly sterile. It is not at all fimbriate. The thickness of the hymenium-producing portion is 2 to 5 mm in mature specimens. Of this thickness practically all is made up of tubes, as little or no subiculum is present. The mouths of the tubes are angular and where best developed average 2 to 3 to a millimeter. The dissepiments are very thin but entire except when growing in oblique positions. In dried specimens they are quite fragile. The best developed specimen has a silky luster over the hymenium.

The spores of this species are oblong or short-cylindrical and with an oblique apiculus (plate 3, figure 2). The other end of the spore is more or less rounded. They are colorless, smooth, measure 5.5 to 7.5 μ in length and 2.5 to 3.5 μ in breadth. It will be noted that these spore characters are different from those assigned to the species by Peck. Those given here, however, are from the specimens on *Acer*. Peck's measurements agree with those of the spores from the specimens on pine bark, and they agree with those of *Poria subacida*. Abundant cystidia are present in the hymenium (plate 4, figure 1-2). They are large, hyaline structures often slightly encrusted at the apex, and quite variable in size

and shape. They project conspicuously from between the basidia. Usually the apex is more or less pointed and they are largest at or just above the center. A peculiar feature of these structures is that they are apparently formed by several hyphal fusions. In crushed preparations of the hymenium as many as five or six hyphae go off from the base of these bodies (plate 3, figure 3). More rarely they appear to be the enlarged end of a single normal hypha. The tramal and subiculum hyphae are rather compactly arranged, are colorless, 2 to 3 μ in diameter, and with clamp connections and cross walls (plate 3, figure 4). The clamps are of a more semi-circular outline than those of most species of fungi. On account of the small size of the hyphae they are somewhat difficult to locate at first. The size of the hyphae and the presence of connections, are other important points separating the specimens on Acer (types) from those on pine bark.

The affinities of the species are not clear. The general appearance is somewhat that of forms of *Poria subacida* or related species, but it differs in the more yellow color when fresh, the different spores, the presence of conspicuous cystidia, the diameter of the hyphae, the presence of clamp connections, etc. It probably belongs to a different group of species. In the several hundred collections of *Poria* thus far examined by the writer, none with this combination of characters has been found.

Not much can be stated regarding the decay produced by this species. The Acer substratum has been reduced to a friable cinnamon-colored mass that readily breaks up into small flakes. The decay in the coniferous substratum is more brown in color and can be powdered more easily.

Redescription. Annual, effused up to lengths of 10 cm or more, separable when fresh (fide Peck), with a fimbriate, byssoid margin (fide Peck) when young, this more or less disappearing in mature specimens, greenish yellow in color (fide Peck); subiculum thin and subgelatinous (fide Peck) in fresh specimens, practically obsolete when dry; tubes 2 to 5 mm long, their mouths golden yellow (fide Peck) when fresh, between cartridge-buff and honey yellow in herbarium specimens, angular when mature, thin-walled, entire, averaging 2.5 to 5 to a millimeter; spores oblong or short cylindric, rounded at apex, obliquely apiculate at base, smooth, hyaline 5.5 to 7.5 \times 2.5 to 3.5 μ ; basidia 3 to 4.5 μ in diameter; hyphae hyaline, branched, 2 to 3 μ in diameter; clamp connections and cross walls present.

On wood of both deciduous and coniferous trees.

Type locality: Sevey, N. Y. C. H. Peck. Also from Ithaca, N. Y., by G. F. Atkinson. Not otherwise known to the writer.

Daedalea extensa Peck

44th Rep't N. Y. State Mus., p. 21. 1891.

Original description. Resupinate, thick, coriaceous, often uneven or somewhat nodulose, the margin at first cottony and white, soon changing to brown, the subiculum slightly rufescent; pores large, unequal and labyrinthiform, in vertical places oblique, whitish; spores minute, oblong, .00024 to .0003 in. long, .0001 to .00012 broad.

Prostrate trunks of deciduous trees. Salamanca. September.

This forms patches two feet or more in length on the sides and lower surface of the trunk. It follows the inequalities of the surface, and in vertical places it becomes more or less nodulose or develops a thick obtuse margin, which is velvety-tomentose and at length dark-brown in color, but I have seen no reflexed margin. It is very suggestive of resupinate forms of *Trametes mollis*, but differs from it in the character of the pores, in the thicker subiculum and in the absence of any free margin.

Note. According to Dr H. D. House, nothing is left of the type collection of this species except a few wood fragments with very slight indications of a fungous mycelium. It is quite probable that the species will never be recognized from the above description alone. The description reads somewhat like one of the resupinate forms of *Trametes serialis* Fries, in which the hymenium had become lacerated and torn. The writer has seen from one of the New England states (New Hampshire) specimens of *Trametes mollis* B. & C. that would also answer the description fairly well.

Poria fimbriatella (Peck) Sacc.

Plate 4, figure 3; plate 5, figures 1-7; plate 22, figure 6

Syll. Fung. 6: 303. 1888.

Polyporus (*Physisporus*) *fimbriatellus* Peck, 38th Rep't N. Y. State Mus., p. 91. 1885.

Original description. Widely effused, thin, tenacious, separable from the matrix, with a thin white fimbriate margin and a white subiculum, running into rhizomorphoid branching strings of

mycelium or forming a somewhat reticulated fimbriate membrane; pores minute, subrotund, equal, whitish inclining to cream color.

Under side of prostrate trunks of maple, forming extensive patches on the wood and bark. Osceola. Aug.

By its rhizomorphoid mycelium this species is related to *Poria vaillantii*, but the pores are smaller and not collected in heaps as in that species. By reason of its tenacious substance it is readily separable even from an irregular matrix.

Notes. With this species a question arises as to what shall be considered the type material. The herbarium sheet contains what are undoubtedly parts of two separate collections, and there is some doubt as to the identity of the two collections. One set of specimens (plate 22, figure 6) has nearly entire tube mouths and few mycelial strands and is undoubtedly from the type collection. The other set of specimens (plate 4, figure 3) has a more lacerated hymenium and better developed mycelial strands. When touched with a drop of KOH solution the former at once becomes black while the latter does not change color. There is also in the herbarium a collection in a small box that agrees exactly with the second set of specimens on the herbarium sheet, and undoubtedly those specimens were taken from this box (or collection) and mounted on the sheet. This collection, according to the label on the box, was made at Ampersand pond by Peck in September, and was taken from a maple substratum. The first collection is from Osceola and also on the prostrate trunk of maple. Undoubtedly the Osceola specimens are the types and are so regarded here. In internal structure the two collections are alike. The only differences in external appearance are the more lacerated hymenium, better development of mycelial strands, and the lack of color change in KOH for the Ampersand collection.

The specimens are rather irregular in shape and vary in size from 1.5 to 7 cm broad and 6 to 15 cm long. The color of the hymenial surface varies from cinnamon buff to warm buff or somewhat light ochraceous buff. Sometimes a very narrow, white, subfimbriate margin is present, but more often the entire margin is fertile. In either case small white rhizomorphic strands less than one-fourth of a millimeter in diameter may be present, but in some specimens they are absent. The thickness of the hymenium-producing portion varies up to 2 mm. Of this practically all is tube length, as the white subiculum is extremely thin. The mouths of the tubes when entire are more or less angular, and average 4 to 5 to a millimeter. The dissepiments are rather thin and, especially in one set

of specimens, soon become much torn and lacerated so that the hymenium at times comes to have somewhat the appearance of specimens of *Hydnum ochraceum* (plate 4, figure 3), although the color is not quite so deep. In some specimens there is a very slight sheen or silkiness to the surface of the hymenium.

The spores are the exact counterparts of those of *Poria myceliosa*, except that they are slightly smaller. When seen on basidia before maturity they appear more or less globose. When mature they are ellipsoidal, hyaline, and measure 2 to 3 μ in length and about 1.5 μ in breadth (plate 5, figure 7). The basidia are rather small, never exceeding 3 μ in diameter. There are abundant cystidia in the hymenium. These project prominently into the lumen of the tube (plate 5, figures 1 and 2). At times they appear to be associated in small groups on certain walls of the tubes, but at other times they are evenly distributed. They are hyaline and rather heavily encrusted with small crystals. Their shape can best be made out by reference to the illustration on plate 5 (figures 2, 5 and 6). Sometimes they are sharply pointed and at other times more blunt on the apex. They are 10 to 15 μ in diameter at the thickest points and project 10 to 30 μ beyond the basidia. A much greater length is embedded in the tramal tissue, however, so that the total length may reach 50 μ or more. The embedded portion is usually free from crystals and appears as a large, thick-walled, hyphalike structure. These cystidia are very much alike in both sets of specimens on the herbarium sheet, though in KOH solution those found in the one set are brownish in color.

The hyphae of the subiculum are colorless and practically simple, and no cross walls or clamp connections are apparent (plate 5, figure 4). Their diameter is 2 to 4 μ . Those of the trama are somewhat smaller, somewhat more branched and more flexuous, with a diameter of 1.5 to 3 μ (plate 5, figure 3). They are practically the same in both sets of specimens on the herbarium sheet.

The relationships of this species are clearly those of *Poria myceliosa*. The chief point of difference having diagnostic value is the presence of cystidia in the former species and the absence of cross walls and clamp connections. Another fact that may be of some significance is that *Poria myceliosa* has been collected only on the wood of coniferous trees while *Poria fimbriatella* is known only from the wood of deciduous trees. The length of the tubes in *Poria fimbriatella* is somewhat greater and their diameter somewhat less than in the other

species, but in general coloration, rhizomorphic mycelial strands, and spores, the two are alike.

Specimens referred by the writer to *Poria vaillantii* (DC.) Fries, differ in the nearly pure white color and the larger spores.

The collections available for examination are not attached to the substratum and consequently give no idea of the nature of the decay produced. Both collections are said by Peck to be on maple wood. The data at present on the type collections does not cover this point.

Redescription. Effused, 6 to 15 cm long, 1.5 to 7 cm broad, separable, with or without a narrow (1 to 3 mm), white, subfimbriate margin, often with small white rhizomorphic strands; subiculum exceedingly thin, white, scarcely discernible in mature specimens; tubes sometimes nearly 2 mm long but often shorter, their mouths whitish inclining to cream color (when fresh ?, fide Peck), cinnamon buff to warm buff or light ochraceous buff in herbarium specimens, more or less angular, with rather thin dissepiments, sometimes lacerated and the hymenium somewhat irpiciform, averaging 4 to 5 to a millimeter; spores ellipsoidal, smooth, hyaline, minute, 2.5 to $3.5 \times 2 \mu$; basidia 2.5 to 3μ in diameter; cystidia abundant, 10 to 15μ in diameter at the thickest part, projecting prominently for 10 to 30μ , the tips pointed and encrusted with coarse granules, the base embedded in the trama and unencrusted; tramal tissue fairly compact, composed of thin-walled, colorless, somewhat branched hyphae, 2 to 3.5μ in diameter; subiculum hyphae nearly simple, 2 to 4μ in diameter; clamp connections lacking; cross walls invisible.

On prostrate trunks of maple.

Type locality: Osceola, N. Y. C. H. Peck. Also collected at Ampersand pond, N. Y., on maple trunk. C. H. Peck. Not otherwise known to the writer.

Poria griseoabla (Peck) Sacc.

Plate 5, figure 8; plate 6, figures 1-5

Syll. Fung. 6: 306. 1888.

Polyporus (*Physisporus*) *griseo-albus* Peck, 38th Rep't N. Y. State Mus., p. 91. 1885.

Original description. Effused, thin, tender, adnate, uneven, scarcely margined, indeterminate, grayish-white, with a thin pulverulent subiculum; pores very minute, subrotund, often oblique.

Soft decaying wood of deciduous trees. Osceola. July.

The pores are sometimes collected in little heaps or tubercles as in *P. molluscus* and *P. vaillantii*. In the dried state they are slightly tinged with creamy yellow.

Notes. This is one of the earlier species of *Poria* described by Peck, and the description is entirely inadequate for the recognition of the species. The type collection is rather scanty, consisting of about eight small fragments of the substratum, the largest of which is only 4 cm in diameter. This larger fragment is fairly well covered by the fungus (plate 5, figure 8), but the others bear only small scattered fructifications, the diameter of which may not exceed 5 mm. In other words, the fungus varies in size from 5 mm to about 4 cm broad. The color of the hymenial surface varies from pale smoke gray to pinkish buff or cinnamon buff. The subiculum is fertile to the margin. The margin is not fimbriate and there are no rhizomorphic strands. The fructification is extremely thin, not more than one-fourth of a millimeter thick, and no subiculum is discernible except with a hand lens. The tubes are extremely short. Their mouths are nearly circular in outline and average 4 to 6 to a millimeter. In the thinner parts of the subiculum these tubes appear as small holes entirely through the fructification. The dissepiments are rather thin but entire. There is no sheen or silkiness to the hymenium.

The spores are oblong or short-cylindrical, sometimes curved, and sometimes pointed at the base. They are colorless, smooth, and measure 4 to 5 μ in length and 1 to 2 μ in breadth (plate 6, figure 5). They are thus of a somewhat different type from the small, allantoid spores such as are found in *Poria odora* and are characteristic of such species of *Polyporus* as the *Polyporus versicolor* and *P. chioneus* group. The basidia are 2 to 3 μ in diameter. Their origin is at times rather peculiar and unlike that of any other species known to the writer. Instead of the basidium arising terminally from more or less elongated hyphal branches, they here often arise in a series of as many as ten or even more from *one side* of a hypha in the hymenial region, as shown in the illustration (plate 6, figure 2). Usually, or perhaps always, the end of the hypha is broken up into a number of short cells each of which gives rise to a basidium, though this fact could not be determined in all cases. In many cases the basidium is cut off from its basal cell by a cross wall, though this was not always evident. This manner of origin of the basidia is frequently seen in crushed preparations of the hymenium, and in several cases spores

were seen attached to these basidia. In other cases, however, hyphae were seen to give off a number of upright branches, closely arranged, and each terminating in a basidium. The tramal and subiculum tissue is fairly compact and is made up of hyphae that vary considerably in size. Some are 5 to 7.5 μ in diameter and composed of short cells 25 to 50 μ long (plate 6, figure 1, 3). For the most part they are slightly encrusted with small scattered crystals. Other hyphae, especially in the trama, are considerably smaller, with a diameter of 2.5 to 5 μ (plate 6, figure 2). Hyphal fusions are common in hyphae of both sizes. There are no cystidia in the hymenium. No clamp connections have been observed.

The species is quite distinct from any other of Peck's species in the very thin fructification, and the presence of the large hyphae, sparingly encrusted and composed of short, loosely joined cells.

The specimens are from very rotten spruce wood and nothing can be determined as to the type of decay produced.

Redescription. Annual, not widely effused, .5 to 4 cm in diameter, inseparable (fide Peck, though with appearance as if it might be separable), fertile to the margin; subiculum not visible in herbarium specimens; tubes less than .25 mm long, their mouths grayish white (fide Peck) in fresh specimens, pale smoke gray to pinkish buff or cinnamon buff in herbarium specimens, circular, thin-walled, entire, averaging 4 to 6 to a millimeter; spores hyaline, oblong or short cylindrical, sometimes curved, often pointed at the base, 4 to 5 \times 1 to 2 μ ; basidia 2 to 3 μ in diameter; tramal and subiculum tissue compact, some hyphae 5 to 7.5 μ in diameter and of short cells 25 to 50 μ long, others 2.5 to 5 μ in diameter and of longer cells, both kinds much branched, frequently anastomosing, and usually slightly encrusted with a few scattered crystals; clamp connections absent.

On well-rotted wood of deciduous trees.

Type locality: Osceola, N. Y. C. H. Peck. Not otherwise known to the writer.

Poria indurata (Peck) Cooke

Plate 6, figures 6-7; plate 7, figures 1-3

Grevillea, 14:115. 1886.

Polyporus (Resupinati) *induratus* Peck, 31st Rep't N. Y. State Mus., p. 37. 1879.

Myriadoporus induratus Peck, Torrey Club Bul. 11, p. 27. 1884.

Original description. Effused, hard, determinate, 1"-2" thick, inseparable from the matrix, almost wholly composed of minute, subrotund vesicular pores, yellowish or pale-ochre, the surface

slightly pruinose and tinged with flesh color; the yellowish mycelium or subiculum penetrating the matrix.

Decaying wood. Oneida. H. A. Warne.

This species is remarkable for the peculiar character of the pores which form little cells or cavities instead of tubes, so that in whatever direction the mass is cut or broken, the section appears equally porous. Perhaps this character will necessitate the formation of a new genus.

Notes. This plant was originally placed in the genus *Polyporus* but was later transferred to *Myriadoporus*, a genus erected by Peck to receive what are now believed to be abnormal forms of other species, differing from well-developed specimens in having a cellular, hymenial surface that is usually sterile. In such specimens both vertical and cross sections of the hymenial region show distinct pores or cavities.

The writer does not believe that the present species deserves specific rank because of its apparent abnormality. But the absence of a hymenium is more or less of a barrier to deciding of what species it is an abnormal form. Nevertheless, others may not agree with the writer, and hence a description is here appended, based entirely on the type collection.

There are mounted on the type sheet at Albany five small specimens of the fungus, the largest of which is only about 3 cm long. The specimens are annual and belong to the white group of *Poria* (plate 6, figure 6). At present the hymenial surface is avellaneous or vinaceous buff or verging toward pinkish cinnamon. The margin is abrupt, rather thick, and nearly or entirely fertile. The thickness of the hymenium-producing portion is 3 to 6 mm, of which the subiculum is a rather thin and inconspicuous part. The cellular hymenium is 2 to 5 mm thick, but the tubes are not continuous in any one direction. At whatever angle the hymenium is cut they appear as small rounded holes, averaging 5 or 6 to a millimeter (plate 7, figure 3).

The type material is sterile, and for the most part does not contain either basidia, cystidia or paraphyses (plate 7, figures 1 and 2). The trama is very compact and made up of thick-walled hyphae which in cross section give a firm pseudo-parenchymatous appearance to the trama (plate 7, figure 2). When teased out the hyphae are seen to be hyaline, mostly simple, and with few apparent cross walls. Their thickness is 5 to 7.5 μ , and the walls are often as much as 2 μ thick (plate 6, figure 7).

As stated above, the affinities of this plant are in doubt and it is a question whether or not such undoubted abnormal forms are worth consideration. It might be pointed out, however, that *Fomes connatus* has the same type of trama with smaller heavy walled hyphae as in this plant, as has also the plant heretofore referred by the writer to *Polyporus rigidus* Lev. A technical description is omitted.

***Poria laetifica* (Peck) Sacc.**

Plate 7, figures 4, 6; plate 8, figures 1-2

Syll. Fung. 6: 300. 1888.

Polyporus (*Physisporus*) *laeticus* Peck, 38th Rep't N. Y. State Mus., p. 91. 1885.

Original description. Effused, thin, tender, not readily separable from the matrix, bright orange with a subtomentose yellowish margin; tubes short, often oblique, minute, subrotund, the dissepiments thick, obtuse.

Decaying wood. South Ballston. Aug.

The fungus forms patches 2 or 3 in. long, following the inequalities of the surface. In the dried state the pores appear like little ruptured vesicles as in *P. vesiculosus* B. & C. The species appears to approach *P. fulgens*, Rost.; which has the margin white fibrillose and the pores acute.

Notes. From the standpoint of the type collection this is one of the most unsatisfactory of Peck's species of *Poria*. Not only is the type material scanty but it is also sterile. It is therefore almost impossible to match collections with the type with absolute certainty. Consequently others may not agree with the writer in the application of Peck's name. But the writer has in his herbarium three collections from Pennsylvania that appear to agree in all respects with the type fragments. Notes were made on these in the fresh condition and these notes agree with Peck's brief description. The dried plants have a peculiar appearance to the hymenium and that also is found on my specimens. Consequently I have taken my specimens as representative of the species. Specimens have been deposited in the state herbarium at Albany and so are available for comparison with the types. These specimens are fertile as noted below. But in order to differentiate sharply between the type collection and my own specimens the following notes are based on

the former only and the technical description at the end includes additional notes from my own collections.

The type collection was at first apparently on three pieces of wood, one of which was broken into three parts and mounted on a herbarium sheet (plate 8, figure 1), while the two remaining pieces were preserved in a paper packet. The largest piece of wood is about 7 cm long and 3 cm wide and about two-thirds of its area is occupied by the fungus. The color of the hymenial surface was at first bright orange (fide Peck), but on drying has become nearly hazel or cocoa brown, and another part (probably bruised when fresh) has become seal brown or aniline black. These areas are partly surrounded by a sterile, appressed-tomentose margin now cinnamon buff in color. The hymenium-producing region is less than one-half of a millimeter thick. Of this thickness nearly all is composed of tube length. From the consistency of the fructification one would not judge that the species is perennial. The fungus grew obliquely, however, and in sections taken across the tubes (hence perpendicular to the substratum) there are present many tubes (cut in cross section) completely filled with mycelium, while the ones toward the outside are free from mycelium as though they were the product of the current season's growth. Where best developed the pores average 4 to 6 to a millimeter and are subrotund with rather thick walls. Over most of the surface, however, they have an abnormal appearance "like little ruptured vesicles," as Peck states. There is no sheen or silkiness to the hymenium.

Sections of the hymenium where best developed show no spores although the basidia are present (plate 8, figure 2). No cystidia were found. The trama and the subiculum are quite compact and composed of branched hyphae very frequently more or less encrusted with small crystals (plate 7, figure 5). At present most of these hyphae are colorless but the tips are frequently filled with a brown substance which in the hymenium probably gives color to the fructification. The hyphae are 2 to 4 μ in diameter. Cross walls are visible but usually not conspicuous and often are obscured by the crystals. No clamp connections are present.

The type collection was taken from the well-decayed wood of a coniferous tree but the wood fragments adhering to the specimens are too much decayed to admit of its further identification.

The type locality is South Ballston, N. Y.

In the following description notes from recent Pennsylvania collections are also included, consequently the description is the

writer's interpretation of *Poria laetifica*. Specimens of these collections have been deposited in the herbarium at Albany for reference.

Redescription. Widely effused, annual, separable, as much as 10 cm broad and long, 1 to 3 mm thick in fresh specimens, 1 to 2 mm thick when dry, surrounded by a warm buff to ochraceous buff, sterile, compactly tomentose margin; subiculum thin but conspicuous even in dried plants, light colored; tubes .5 to 1.5 mm long when fresh, not more than 1 mm long when dry, their mouths orange buff to ochraceous orange when fresh, dark red or blood red where bruised, orange cinnamon to hazel or often seal brown when dry, subrounded, averaging 4 to 6 to a millimeter when fresh but in dried specimens often collapsing and nearly invisible, the dissepiments rather thick walled and entire; spores allantoid, hyaline, 3.5 to $4.5 \times 1 \mu$; cystidia none; trama and subiculum compact, of thin-walled hyphae that are colorless except for the tips that are frequently filled with a brownish substance, branched, 2 to 4μ in diameter, often sparingly encrusted with small crystals; cross walls present but not conspicuous; clamp connections lacking.

On rotten wood both of deciduous and of coniferous trees.

Type locality: South Ballston, N. Y. C. H. Peck. Also collected at Wright's Gap, Center co., Pa., on hemlock wood, September 12, 1916; at Musser's Gap, Center co., Pa., on dead wood. L. O. Overholts, no. 3431 and no. 2944 respectively.

Poria macouni (Peck)

Plate 8, figures 3-6

Polyporus macouni Peck, Bot. Gaz., 4: 169. 1879.

Original description. Effused, irregularly tuberculate, tawny-ferruginous; pores minute, subrotund, somewhat unequal, the dissepiments generally thick and obtuse; spores subglobose, .00025 of an inch in diameter.

Creeping over and encrusting mosses. Belleville, Ontario. Macoun.

The species belongs to the section *Resupinati*. The specimens indicate that the plant is composed of numerous small unequal and irregular confluent tubercular masses whose porous surface gives them a somewhat spongy appearance. The irregular and uneven surface of the whole mass is probably due mainly to the character of the place of growth.

Notes. The original packet is now preserved in a herbarium box at Albany. It contains a single specimen that measures 7 cm long by about 3 cm broad, a photograph of which is reproduced on plate 8, figure 3. The fungus presents a very rough and undulating surface as though an attempt had been made to form numerous small pilei. The lower side of these nodules bears the nearly vertical pores. These, then, are not continuous over the surface but collected in small groups. The uneven appearance of the fructification may be mostly due to the fact that it is growing over mosses, and some moss fragments can be seen embedded in it. The thickness of the fructification is from 2 to 4 mm. There is a distinct brown subiculum from which the nodules arise. The tubes are 1.5 to 2.5 mm. long where best developed. Their mouths are rounded and rather small, averaging about 4 or 5 to a millimeter. The dissepiments are thick and entire. There is no sheen or silkiness to the hymenium.

The spores are oblong-ellipsoidal or oblong, hyaline, and measure 4.5 to 5.5 by 2 to 2.5 μ (plate 8, figure 5). Setae are abundant and project conspicuously into the lumen of the tube. They are sharp pointed and dark brown in color (plate 8, figure 6). The hyphae of which the subiculum and the trama are composed are dark brown in color and for the most part unbranched. A few cross walls are present but they are inconspicuous and are easily overlooked. There are no clamp connections on these hyphae. Their diameter varies from 2.5 to 3.5 μ (plate 8, figure 4).

A careful perusal of the above facts suggests that the species may not be distantly related to the plant known in this country as *Poria ferruginosa* (Schrad.) Fries, and the writer is of the opinion that this connection will eventually be established. The unusual habitat and the consequent irregularities of growth are the only separating characters. The shape of the spores is characteristic of that species. In fact the writer is unacquainted with any other species of *Poria* or *Polyporus* that has spores of this shape and size. The characters of hyphae and setae also agree with that species. *P. macouni* is not listed by Murrill in the North American Flora where the brown species of *Poria* are described.

Redescription. Subiculum effused for several centimeters, the pores collected into vertical groups forming nodules—hence surface of fructification very uneven; general coloration brown; tubes 1.5 to 2.5 mm long, their mouths rounded, ochraceous tawny to tawny, averaging 4 to 5 to a millimeter; dissepiments thick and

entire; spores oblong-ellipsoidal or oblong, hyaline, 4.5 to 5.5×2 to 2.5μ ; setae abundant, sharp-pointed, projecting conspicuously; hyphae of trama and subiculum brown, nearly simple, 2.5 to 3.5μ in diameter, cross walls present but indistinct; no clamp connections.

Overrunning moss.

Type locality: Belleville, Ontario, Canada. Macoun. Not otherwise known to the writer.

***Poria marginella* (Peck) Sacc.**

Plate 9

Syll. Fung. 9: 194. 1891.

Polyporus marginellus Peck, 42d Rep't N. Y. State Mus., p. 122. 1889 (Bot. Rep't, p. 26).

Original description. Resupinate, effused, forming extensive patches, 1 to 3 lines thick; subiculum distinct, firm, subcinnamon, the extreme growing margin white, becoming dark-ferruginous with age; pores at first short, sunk in the tomentum of the subiculum, then longer, minute, rotund, often oblique, brownish-ferruginous, glaucous within, the dissepiments thick, obtuse.

Dead bark and decorticated trunks of spruce, *Abies nigra*. North Elba. Sept.

Remarkable for and very distinct by the narrow downy white margin that borders the growing plant.

Notes. The type collection consists of two small pieces 5 to 7 cm square, mounted on a herbarium sheet, and several others preserved in a herbarium packet. Fortunately also, several other good collections from different points in the United States are available for comparison. The color of the hymenial surface is near snuff brown, cinnamon brown, or more tawny, and the margin itself is white in fresh plants but may become brown in herbarium specimens. This margin is compactly tomentose, narrowly sterile, and quite thin. The thickness of the hymenium-producing portion varies from 1 to 5 mm, the larger thickness sometimes involving the growth of two years, although for the most part the fungus is strictly annual. The subiculum is conspicuous, bright tawny in color and at times as much as a millimeter thick. The tubes are usually rather oblique and in length may reach as much as 4 mm although more often they are not more than 2 or 3 mm long. Their mouths are more or less rounded or somewhat irregular and average 4 to 5 to a millimeter. The dissepiments are about as thick as the diameter of the tubes, and are even and entire. There is no sheen or silkiness to the hymenium.

Murrill (North America Flora, 9: 5. 1907) reported the spores of this species as "ovoid, hyaline, $6 \times 5 \mu$." Examination of the type material shows, however, that they are allantoid, hyaline, quite small, 3 to 5μ long and about 1μ broad (plate 9, figure 5). These spores are found abundantly in sections, and many of them were seen attached to basidia, so there can be no question as to their identity. The same type of spore has been found in several other collections of this species. Many setae are present in the hymenium, but they do not project so prominently as in many other species (plate 9, figures 2-3). In crushed preparations (plate 9, figure 4) they are seen as the enlarged, blunt-pointed, dark-brown ends of ordinary hyphae, but they are quite different from the very large setaelike bodies of *Poria setigera* and *Polyporus glomeratus*. Their diameter is only 3 to 5μ . The hyphae of the trama and subiculum are dark brown, rather heavy walled, and sparingly branched (plate 9, figure 6). Cross walls are faintly visible in the darker colored of these and more conspicuous in those of lighter color. There are no clamp connections on these hyphae. Their diameters are from 2.5 to 5μ .

The type material is from dead wood of spruce and that substratum appears to be the usual one in the eastern United States. In the northwestern United States it occurs on *Abies* and on *Larix*.

The species belongs in the same group as *Poria ferruginosa* Fr., *Poria contigua* (Pers.) Fries, and *Poria inermis*. From the first two it differs in the smaller spores and from the last in the presence of setae and in the hyaline spores. In fresh specimens the light-colored margin is often distinctive.

Redescription. Annual or rarely perennial, brown, inseparable (?), effused for several centimeters, with a narrow, thin, sterile, tomentose border of light color in fresh plants; subiculum conspicuous, bright tawny, up to 1 mm thick; tubes oblique, 2 to 4 mm long, their mouths snuff brown, cinnamon brown, or slightly grayish, rounded, averaging 4 to 5 to a millimeter; dissepiments relatively thick, entire; spores allantoid, hyaline, 3 to $5 \times 1 \mu$; setae abundant, not conspicuous, projecting, blunt-pointed, 3 to 5μ in diameter; hyphae dark brown, heavy walled, nearly simple, 3 to 5μ in diameter, cross walls visible; no clamp connections.

On wood and bark of spruce. Also on *Abies* and *Larix* from the northwest (Weir).

Type locality, North Elba, N. Y. C. H. Peck. Also known from the northwestern United States (Weir).

***Poria mutans* Peck**

Plate 10, figures. 1-4

43d Rep't N. Y. State Mus., p. 39. 1890.

Polyporus mutans Peck, 41st Rep't N. Y. State Mus., p. 77. 1888.

Original description. Resupinate, rather thick, tough, following the inequalities of the wood; pores minute, rotund, short, buff-yellow or cream color, becoming dingy red or dull incarnate where wounded, the subiculum fibrous, changing color like the pores, the whole plant assuming an incarnate hue when dried.

Decaying wood of deciduous trees. Selkirk. August.

Sometimes a narrow, reflexed obtuse margin of a yellowish brown color is formed. The pores are often oblique. The species appears to be quite distinct by reason of its peculiar colors.

Notes. The type collection contains abundant material but the species is one that changes much in drying and consequently it must be carefully interpreted. The material is in pieces up to 4 cm long and broad (plate 10, figure 1). The chief characteristics of the dried specimens are the hard, almost bony consistency and the dull rusty color. The color of the hymenium is now light pinkish cinnamon in some specimens, and tawny or russet in others, and therefore with less red than in *P. laetifica*, although the colors of the fresh plant must be similar to those of that species, judging from Peck's descriptions. Only in the younger specimens is there a rather thick sterile and often more or less abrupt margin present; in mature specimens the margin is fertile. The thickness of the hymenium-producing portion is at present 1 to 5 mm and probably in fresh plants somewhat thicker. The subiculum is quite conspicuous and its thickness sometimes equals the length of the tubes, but is often considerably less. The tubes vary in length from 1 to 3 mm in the type. In a collection from Bolton, N. Y., they are as much as 5 mm long. Their mouths are angular in mature plants but rounded in young specimens. According to Peck their color is buff yellow or cream yellow in fresh specimens and becoming red when wounded. Their diameter is 3 to 4 to a millimeter where mature, and the dissepiments are rather thin but entire. There is no sheen or silkiness to the hymenium.

The spores are broadly ellipsoidal or nearly globose, but some are apiculate at one end and inclined to ovoid (plate 10, figure 2). They are hyaline under the microscope and 3.5 to 5 μ long by 2 to 3.5 μ broad. The best developed portions of the hymenium in the type collection are sterile and where spores were obtained it was

difficult to prove their connection with the basidia; indeed mature spores attached to the basidia were not seen. But a large number of basidia have small subglobose, immature spores on sterigmata and undoubtedly the larger spores of the same general shape belong to the fungus. Moreover, in another collection of the same species made at Croghan, N. Y., by Peck, mature spores are found on basidia of the usual type. It was at first suspected that the spores of this species would be allantoid, as are those of closely related plants. There are no cystidia in the hymenium (plate 10, figure 4). The trama and subiculum are made up of very compact hyphae that are colorless, and 2.5 to $4\ \mu$ in diameter. Of these some are encrusted and some smooth, the latter type occurring in greater numbers in the growing margin (plate 10, figure 3). Cross walls are present but not conspicuous and their rarity suggests that many are invisible by the methods used for their detection. Clamp connections are present but not at all common. Both clamp connections and cross walls are more or less obscured in the encrusted hyphae. Branches are infrequently seen.

The species is related to *Poria laetifica* and in fresh condition this resemblance must be considerably heightened. Both are of the same general color when fresh, and both become red where bruised and on drying. *P. mutans* is of harder consistency when dry and has very different spores. The colors on drying are quite distinct—so much so that the species can easily be separated on that character provided it proves to be constant over a wide range of specimens.

Redescription. Effused for several centimeters, annual, apparently separable, with an abrupt sterile margin when young, later the margin sometimes entirely fertile, drying hard and firm; subiculum present, distinct, rarely as much as 2 mm thick and usually much thinner; tubes 1 to 5 mm long, their mouths buff yellow or cream yellow (fide Peck) when fresh, red where bruised, pinkish cinnamon to tawny or russet in herbarium specimens, angular, thin-walled, entire, averaging 3 to 4 to a millimeter; spores ellipsoidal or nearly globose, sometimes ovoid, hyaline, 3.5 to 5×2.5 to $3.5\ \mu$; cystidia none; tramal and subiculum hyphae very compact, hyaline, many encrusted with rather large crystals, some entirely unencrusted, very sparingly branched, 2.5 to $4\ \mu$ in diameter; cross walls not frequently seen; clamp connections present but rather rare,

On chestnut wood. Probably on wood of other kinds of deciduous trees.

Type locality: Selkirk, N. Y. C. H. Peck. Also at Croghan, Bolton and Savannah, N. Y. C. H. Peck. Not otherwise known to the writer.

***Poria mutans* var. *tenuis* Peck**

Plate 10, figure 5; plate 11, figures 1-4

43d Rep't N. Y. State Mus., p. 39. 1890.

Original description. Very thin, tender, the margin often wide and downy. Bark and wood of spruce, *Picea nigra*. Sevey. July.

The species appears to differ from *P. cruentata* Mont. in having the pores and subiculum of one uniform yellowish or subochraceous color, which changes where bruised or in drying to a dull red or subincarnate hue.

Notes. This, originally described as a variety of the former species (*Poria mutans*), should in all probability be regarded as distinct for reasons brought out in the following discussion. The writer hesitates to give it specific rank at present, however, as it is not certain that the spores have been found. The name is preoccupied by *P. tenuis* Schw. and *P. tenuis* Karst. Consequently if this plant be raised to specific rank it must have a new name.

Apparently the type collection well represents the species in external form and appearance. The largest specimen is scattered over a piece of wood 12 cm long and 5 cm broad (plate 10, figure 5). The color of the fructification in young specimens is now onion-skin pink or vinaceous cinnamon, and in older specimens near burned umber or carob brown but with somewhat more red than in those colors. The plant evidently develops by forming an extensive subiculum on which the tubes are later produced. Consequently the hymenium-producing portion is usually surrounded by a broad sterile margin, at present vinaceous cinnamon in color. Perhaps if collected later in the season this might largely have disappeared. This margin is finely and compactly tomentose, and may be as much as a centimeter broad. It is rather thin and not at all fimbriate. The thickness of the hymenium-producing portion is not more than one-half of a millimeter and consists of very short tubes seated on a very thin but quite evident subiculum. The mouths of the tubes are decidedly angular in outline and average

3 to 4 to a millimeter. The walls of the tubes are very thin but entire. There is no sheen or silkiness to the hymenium.

Spores have not certainly been found in the type collection. One preparation yielded a few cylindric spores that were colorless and measure 4 to 5 μ in length and about 1 μ in breadth (plate 11, figure 2). Most collections of *Poria* in this section, in the writer's herbarium have this type of spore and it is probably the kind to be expected in this plant. There are no cystidia in the hymenium (plate 11, figure 1). The trama and subiculum are of quite compactly arranged hyphae that are colorless, rarely branched in the subiculum but more frequently so in the trama, and with few clamp connections. Cross walls are rarely seen except in company with the clamp connections. In the subiculum many of these hyphae are encrusted and vary in diameter from 2.5 to 5 μ (plate 11, figure 3). Those of the trama are more often unencrusted, and somewhat smaller, with a diameter of 2 to 3.5 μ (plate 11, figure 4).

The type collection differs from *P. mutans* in the following characteristics. It is much thinner; the colors of the dried plants are quite different; their consistency is not at all that of *P. mutans*; that is, not hard and bony on drying. The hymenial characters with the possible exception of the spores are the same as those of that species.

The type collection is apparently from bark and decorticated wood of spruce. The decayed wood is straw yellow in color, quite brittle and readily separates into concentric layers. One specimen shows advanced stages of a pocket or piped type of decay but another organism may be responsible for it.

Redescription. Annual, separable, effused for 10 to 12 cm or more, with a compactly tomentose, sterile margin 1 cm or more broad, vinaceous cinnamon in color; subiculum quite thin but conspicuous under a lens; tubes scarcely .5 mm long, their mouths yellowish or subochraceous when fresh (fide Peck), vinaceous cinnamon, onion-skin pink, or much darker (near burnt umber or carob brown) in dried plants, angular, thin-walled, entire, averaging 3 to 4 to a millimeter; spores not definitely known, probably cylindric or allantoid, hyaline, 4 to 5 \times 1 μ ; cystidia none; trama and subiculum compact, of hyaline, thin-walled, simple or slightly branched hyphae, often heavily encrusted in the subiculum, but less so in the trama, 2.5 to 5 μ in the former, 2 to 3.5 μ in the latter; cross walls mostly inconspicuous; clamp connections present but not abundant.

On bark and decorticated wood of spruce.

Type locality: Sevey, N. Y. C. H. Peck. Not otherwise known to the writer.

***Poria myceliosa* Peck**

Plate 10, figure 5, plate 11

N. Y. State Mus. Bul. 54, p. 952. 1902

Original description. Subiculum membranaceous, separable from the matrix, connected with white branching strands of mycelium which permeate the soft decayed wood, or with radiating ribs which run through the broad sterile fimbriate white margin; pores very short, subrotund angular or subflexuous, the dissepiments thin, acute, dentate or slightly lacerate, pale yellow; spores minute, subglobose, .0008-.00012 of an inch broad. Round Lake, Saratoga co. August.

This fungus forms patches several inches in extent on much decayed wood of hemlock. It follows the inequalities of the surface on which it grows. It is scarcely more than half a line thick. The pores develop from the center toward the margin and at first are mere concavities in the subiculum. The species is apparently related to *P. tenuis* Schw., from which it differs in habitat, color and the prominent mycelial strands. In this last character it bears some resemblance to *P. vaillantii* (DC) Fr.

Notes. The type collection contains abundant material in various stages of development. The largest specimen is about 8 cm broad and 12 cm long, and the smallest about 2 cm in diameter. The color of the hymenial surface is now nearly cinnamon buff in the more mature specimens and a lighter color near pinkish buff in younger specimens. The species grows widely effused and has a white or whitish sterile border that varies in width up to 15 mm. This border is characteristically fimbriate and from it strands of white mycelium sometimes radiate outward and downward into the substratum (plate 12, figure 1). The largest of these strands are about half a millimeter in diameter but those on the surface of the substratum are much smaller and in some specimens they are entirely lacking. The thickness of the hymenium-producing portion is usually less than one-half of a millimeter and never reaches a millimeter. Of this thickness practically all represents the length of the tubes, as the subiculum on these portions is extremely thin but quite conspicuous. The mouths of the tubes are decidedly angular in outline and vary in diameter from 1 to 4 to a millimeter,

The best formed ones average about 3 to a millimeter, but apparently several adjacent tubes may unite into a single cavity which in extreme instances may be as much as 1 mm in diameter, or it may be elongated or somewhat sinuous. The walls of the dissepiments are thin and in some specimens decidedly dentate, but usually not markedly so. There is no sheen or silkiness to the hymenium.

The spores are hardly subglobose as described by Peck, but are considerably longer in one direction than the other, and the writer would call them ellipsoidal. When viewed obliquely or from the end they present a nearly globose appearance (plate 12, figure 4). Their dimensions are quite small with a length of 2.5 to 4 μ and a breadth of 2 to 2.5 μ . They are colorless and smooth-walled. The basidia are also quite small, not at all prominent, and not more than 2.5 μ in diameter. There are no cystidia (plate 12, figure 2). The hyphae of the trama are loosely arranged so that thin free-hand sections present a very open structure. These hyphae are colorless, 2 to 3.5 μ in diameter, and frequently branched, the longitudinal axis of the branch always being at nearly right angles to that of the hyphae from which it is produced. All branches originate near cross walls (plate 12, figure 3) and the first cell of the lateral branch is rather short, rarely 10 μ long; a cross wall with a clamp connection is then produced and the next cell is much longer. Clamp connections are quite abundant. In the subiculum the hyphae are more irregular and, especially on the growing margin, coalescing strands of all sizes are seen to be forming the larger mycelial cords visible on those portions of the fructification.

According to the original description reproduced above, the type collection was taken from hemlock wood at Round Lake, Saratoga co., N. Y. August 21, 1900. But the label on the sheet containing the herbarium specimens gives the locality as Floodwood, N. Y. Dr H. D. House, the present State Botanist of New York, has noticed this discrepancy and has attached the following typewritten note to the sheet.

"The type locality of *Poria myceliosa* Peck as given in Mus. Bul. 54, p. 952-53. 1902 (viz, Round Lake, Saratoga co.) is not correct. Doctor Peck's private notes show that the species was collected at Floodwood on August 31, 1900, and his notes of that date contain the preliminary draft of the description of *Poria myceliosa*."

The species is rather closely related to *Poria fimbriatella* Peck, which differs conspicuously in the presence of dis-

tinct encrusted cystidia in the hymenium and in the absence of cross walls and clamp connections on the hyphae. That species also has the small ellipsoidal spores and rhizomorphic strands of *Poria myceliosa*. One collection made on August 17th, at Floodwood, N. Y., by Peck and referred by him to *Poria fimbriatella* belongs to the species under discussion, as does also a collection from the Catskill mountains labeled by him as *Polyporus vaillantii*. Both of these may have been prior collections, but the absence from the data of the year of collection obscures this point. A specimen has recently been received from E. T. Harper, collected on hemlock wood at Frankfort, Mich., August 1908.

The characteristic features of the species appear to be the thin separable growth with short tubes and rhizomorphic strands, and the small spores. The writer's interpretation of *Poria vaillantii* (DC.) Fries, calls for a similar plant, but one that is pure white in color, and with quite different spores.

The collections so far examined have been from very rotten wood and no definite statements can be made regarding the nature of the decay produced by the fungus.

Redescription. Effused, 2 to 12 cm broad, separable, with a broad, white, sterile, fimbriate margin often ending in small rhizomorphic strands that follow the surface of the substratum or become embedded in it; subiculum exceedingly thin, white, scarcely discernible in mature specimens; tubes scarcely .5 mm long and often considerably shorter, first appearing as shallow depressions in the subiculum, their mouths pale yellow when fresh (fide Peck), becoming pinkish buff to cinnamon buff in herbarium specimens, angular, thin-walled, often dentate, averaging about 3 to a millimeter but occasionally more or less confluent and up to 1 mm in diameter; spores ellipsoidal, smooth, hyaline, minute, 2.5 to $4 \times 2 \mu$; basidia, 2 to 3 μ in diameter; cystidia none; tramal tissue rather open, composed of thin-walled, colorless, branched hyphae, 2 to 3.5μ in diameter, the branching more or less right angled; clamp connections abundant.

On well-rotted hemlock wood.

Type locality: Floodwood, N. Y. C. H. Peck. Also known from Michigan.

***Poria odora* (Peck) Sacc.**

Plate 13

Syll. Fung. 6: 294. 1888

Polyporus (*Physisporus*) *odorus* Peck, 38th Rep't N. Y. State Mus., p. 92. 1885

Original description. Effused, 2 to 3 lines thick, even, firm but brittle, moist, separable from the matrix, white sometimes stained with reddish yellow on the abrupt, rather thick, slightly fimbriate margin; pores very minute, rather long, equal, entire, white, arising from a thin but distinct subiculum; odor strong, disagreeable.

Under surface of decorticated prostrate trunks of spruce. Osceola. Aug.

It forms patches several inches broad and sometimes more than a foot long. It is distinguished from *P. vulgaris* by being separable from the matrix, moist, having longer pores and a strong odor. From the next following species [*Poria subacida* (Peck) Sacc.] it may be known by its smaller pores, more brittle texture and its different odor.

Notes. The type collection consists of four fragments mounted on a herbarium sheet and several specimens preserved in a paper packet. The largest specimen is 6 cm long and about 3 cm broad (plate 13, figure 1). The specimens are very rigid and firm and apparently become considerably colored on drying. According to Peck the fresh specimens are white with sometimes a stain of reddish yellow on the margin. At present the color varies from avellaneous to cinnamon buff or clay color, and suffused with a gray pruinosity. The plants probably become the darker of these colors when bruised.

The margin is rather abruptly sterile and still retains a reddish yellow color in most cases. In some specimens it almost entirely disappears. The thickness of the hymenium-producing portion is from 2 to 5 mm. The subiculum is rather conspicuous but scarcely more than one-fourth of a millimeter thick, and white in color. The tubes are 2 to 4 mm long and their mouths are more or less angular and covered with a grayish bloom. They vary in diameter from 5 to 7 to a millimeter. The walls are rather thick and entire. There is no sheen or silkiness to the hymenium.

The spores are allantoid or cylindric, hyaline, 3 to 4 μ long by about 1 μ broad (plate 13, figure 3). The basidia are quite small, usually not more than 2 μ in diameter. There are no cystidia or other sterile structures in the hymenium (plate 13, figure 4). The

trama is very compact and in section gives an appearance approaching that of the trama of *Fomes connatus*, but with the walls of the hyphae not quite so thick and the appearance not quite so much like that of a pseudo-parenchyma. The hyphae are flexuous, nearly simple, hyaline, and without clamp connections. Apparently cross walls are lacking (plate 13, figure 2). Their diameter in the subiculum is 3 to 7 μ , but in the trama they are sometimes slightly smaller, 2 to 5 μ in diameter. Small isolated roughened areas are frequent on these hyphae. These areas are not encrusted with crystals but the roughening is apparently due to a breaking and scaling of the hyphal walls.

According to Doctor Peck the species has a strong disagreeable odor in fresh plants. This has not persisted in the herbarium specimens.

The nature of the decay produced can not be determined from the type collection, as no fragments of the substratum are attached to the specimens.

The affinities of the species are in doubt. The combination of characters presented is quite unlike that found in other species of *Poria*. The plants bear some resemblance to *Poria subacida*, but are easily distinguished by the much smaller tubes and the much different spores. It also bears resemblance to *Poria ornatus* but the pores are smaller and the spores different. Specimens previously referred by the writer to *Polyporus zonalis* as the temperate region form of that tropical or subtropical species agree very closely in general appearances with this species. The spores, however, are decidedly different.

It might be mentioned in this connection that several examinations of the type specimens were necessary before spores were obtained. As is often the case in resupinate specimens, the best developed parts of the hymenium showed no spores and in fact no hymenial structure of any sort. It was only when examination was made of those tubes nearer the margin that spores were obtained and the hymenium was found to be well developed.

Apparently the chief characteristics of the species are the allantoid spores, the gray pruinosity on the hymenium, the compact trama and the large hyphae. I have seen no other collections of this species and more study is necessary to decide as to whether or not certain factors should be regarded as of specific importance. The dried specimens are not fragile but are quite firm and hard.

Redescription. Effused for perhaps 10 cm or more (fide Peck) with an abrupt, narrow, sterile, reddish yellow margin; subiculum

conspicuous but thin, white, persisting in dried specimens; tubes 2 to 4 mm long, their mouths white (fide Peck), more or less cinnamon buff or clay color in herbarium specimens, suffused with a grayish pruinosity easily rubbed off when fresh, angular, rather thick-walled, entire, averaging 5 to 7 to a millimeter; spores allantoid or cylindric, hyaline, 3 to 4 x 1 μ ; basidia 2 μ in diameter; cystidia none; trama very compact, composed of flexuous, nearly simple, hyaline hyphae, 3 to 7 μ in diameter, apparently without cross walls; no clamp connections.

On decorticated trunks of spruce.

Type locality: Osceola, N. Y. C. H. Peck. Not otherwise known to the writer.

Poria ornata (Peck) Sacc.

Plate 14

Syll. Fung., 6: 322. 1888

Polyporus (*Physisporus*) *ornatus* Peck, 38th Rep't N. Y. State Mus., p. 92. 1885.

Original description. Effused, 1 to 2 lines thick, somewhat tenacious, adnate or inseparable from the matrix, white, the surface slightly undulate or uneven, the margin definite, studded with drops of moisture when fresh, spotted with dotlike depressions when dry; pores subrotund, minute unequal, often oblique.

Decaying prostrate trunks of deciduous trees. Osceola. August.

This species is at once distinguished by its adnate subiculum and its peculiarly spotted margin. The spots are watery white in the fresh state and each one is covered by a drop of moisture. In the dried plant the place previously occupied by the drop of moisture becomes a small depression in the subiculum.

Notes. The type collection contains but a moderate amount of material at present, but apparently enough to exhibit the important characteristics of the species. The largest and best developed specimen is only about 10 cm long and 5 cm broad, but the fungus probably occurs more widely effused. Peck describes it as "adnate or inseparable from the matrix" but inspection of the lower surface of the plants shows a smooth surface where it has been in contact with the substratum. In this respect it has the appearance of *Poria subacida* when growing on a smooth surface, and that species under such conditions is separable. The hymenial

surface is now pinkish buff to pinkish cinnamon in color. At first the plant has a rather thick margin that is sterile for a width of 3 to 4 mm, but toward maturity this becomes narrower and in the largest specimen is only 1 to 2 mm wide. This margin is marked with scattered small, subrounded, depressed spots that vary in size from one-half of a millimeter to a millimeter in diameter. These spots are not conspicuous but are quite evident under a lens. According to Peck, they represent areas previously occupied by small drops of moisture. This type of spotting is not unknown in other fungi and the exudation of drops of moisture has been characterized as a "weeping" habit. Extended observations are necessary before we can state whether or not this "weeping" is a character of specific importance. The margin of the plant is somewhat uneven but not fimbriate. Mature specimens have a total thickness that varies up to 2 mm. The subiculum is quite thin, often less than one-half of a millimeter. The tubes are often very oblique and even almost vertical where the specimens apparently grew on the vertical side of the substratum. In such cases the tubes may be as much as 6 mm in length, but under more normal conditions of growth they do not exceed 1 to 2 mm. The hymenial surface in specimens from more vertical positions is thrown into undulations as seen in the illustration (plate 14, figure 1). Such examination as it is possible to make of the type specimens indicates that this is hardly to be considered as an effort on the part of the fungus to form a pileus, but that the uneven surface of the substratum is mostly responsible for it. The mouths of the tubes are subrounded, unequal, and in vertical positions decidedly oblique. They average about 3 to $3\frac{1}{2}$ to a millimeter. The dissepiments are rather thick and on the mouths of the tubes there is a fine pubescence in younger specimens, but the more mature ones are glabrous. The only lacerations are those due to the vertical growth of some specimens. There is no sheen or silkiness to the hymenium.

The spores of the species are ellipsoidal and often with a minute apiculus at one end. This apiculus when present is probably always more or less excentric in position, though certain view of the spores present it in a nearly central position. Some spores tend toward oblong-ellipsoidal in shape. They are colorless, smooth-walled, and measure 4 to 5 μ in length and 2.5 to 3.5 μ in breadth (plate 14, figure 5). Basidia are rarely seen in free-hand sections of the plant. There are no cystidia (plate 14, figure 2). At times irregular scattered crystals appear upon or in the hymenium. The

tramal tissue is of fairly compact structure. The hyphae of the subiculum and the growing margin are quite large, averaging 3 to 7 μ in diameter. They are for the most part unbranched and in many the walls are very thick — similar in that respect to those of *P. subacida* and *P. indurata*. Normal clamp connections are not present on these but some of the hyphae show the characteristic forms presented in plate 14, figure 4. At "a" apparently the small outgrowth is a clamp connection, as in other species they often appear so where a hypha breaks at a cross wall. At "b" and "c" are larger bodies that still retain much of the characteristic shape of clamps and in all probability have originated from them. It would be interesting to know what developments such apparently abnormal clamps might lead to in this and other species. In the trama most of the hyphae are similar to those of the subiculum, but there are also some that are quite small, rarely more than 2.5 μ in diameter. These are considerably branched but their small size and their transparent nature makes it difficult to ascertain whether or not cross walls and clamp connections are present. In some cases they are easily detected (plate 14, figure 3) but there are many small hyphae in which they are apparently lacking.

The species is listed by Peck as growing on dead wood of deciduous trees. There is not enough of the substratum attached to the specimens to determine the host of the type collection nor the nature of the decay resulting from the presence of the fungus. But one collection of the species is preserved in the herbarium at Albany. In most respects the species resembles *Poria subacida* Peck, and may eventually be referred to that species. A fine specimen has recently been received from E. T. Harper, collected at Frankfort, Mich.

Redescription. Effused for several centimeters, separable from the matrix, with a narrow, sterile, nearly even, but rather thick margin 1 to 4 mm broad, marked with scattered, rounded, depressed spots; subiculum evident but rather thin, white; tubes 1 to 2 mm long, or in vertical positions 4 to 6 mm long, often very oblique, their mouths white when fresh (fide Peck), pinkish buff to pinkish cinnamon in herbarium specimens, subrounded, gaping and oblique in vertical positions, averaging 3 to 3.5 to a millimeter, the dissepiments rather thick and finely pubescent when young, glabrous when mature; spores ellipsoidal or oblong-ellipsoidal, smooth, hyaline, 3.5 to 5 \times 2.5 to 3 μ , often slightly obliquely apiculate; basidia pyriform or short clavate, 3 to 5 μ in diameter; cystidia none; tramal

tissue rather compact, of hyaline, thin-walled, flexuous, branched hyphae, 1 to $2.5\ \mu$ in diameter; clamp connections small and inconspicuous; subiculum hyphae mostly unbranched, 3 to $6\ \mu$ in diameter but often irregularly enlarged, with inconspicuous clamp connections.

On prostrate trunks of deciduous trees.

Type locality: Osceola, N. Y. C. H. Peck. Also found in Michigan.

***Poria pinea* (Peck) Sacc.**

Plate 15

Syll. Fung., 9: 194. 1891

Polyporus pineus Peck, 41st Rep't N. Y. State Mus., p. 78. 1888

Original description. Resupinate, irregular from the inequalities of the matrix, rather tender but separable from the matrix, the thin subiculum and margin whitish, sometimes tinged with yellow; pores rather large, angular, unequal, two to three lines long, often oblique and lacerated, dingy whitish, becoming blackish where bruised or wounded, the whole plant becoming blackish or blackish-brown in drying.

Wood and bark of pine. Selkirk. August.

The species is apparently allied to *P. obliquus*, but the pores can not be described as very small, nor has our plant an "erect crested margin." It has a distinct subiculum on which the pores are formed and by reason of which the plant is separable from the matrix.

Notes. This is a peculiar species and one can not obtain an adequate idea of it from the dried specimens. The type collection contains rather abundant material but in small pieces less than 5 cm long. The species is dingy white when fresh, becoming very much darker on drying. The color of the hymenial surface at present is near fuscous or bister. Very young specimens have a whitish or yellowish sterile thin margin which may be somewhat fimbriate and in old specimens disappears entirely. It is much lighter in color than the hymenium, at least in the dried specimens. The thickness of the hymenial surface varies up to 6 mm in dried specimens, but probably the fresh specimens were somewhat thicker. The tubes are 3 to 6 mm long and for the most part oblique on the substratum. Their mouths average $1\frac{1}{2}$ to 2 to a millimeter, but in drying are likely to collapse more or less and so be obscured. They are angular and the dissepiments are rather thin but entire (plate 15, figure 1). There is no sheen or silkiness to the hymenium.

The spores of this species are very unusual and unlike those of any other species of *Poria*. In fact, as to color, they are unlike those of any other species of pore-fungus known to the writer. Under the microscope they are more or less fuscous, not unlike those of certain of the dark-spored gill fungi. These spores are also of larger size than the writer has seen in any other species of *Poria*. They vary from 7.5 to 11 μ in length and 4 to 7 μ in width. In shape they are ellipsoidal to ovoid, and with smooth walls (plate 15, figure 6). Dr Burt in a recent publication (*Ann. Mo. Bot. Gard.*, 4:360-61. 1917) gives the spore measurements for this species as 10 to 12 by 6 to 7 μ , but my measurements make them considerably shorter. There are no cystidia in the hymenium (plate 15, figure 2). The basidia in the type specimens are quite conspicuous and in free-hand sections (plate 15, figure 2) they have a tendency to separate in a smooth layer from the trama. In all cases there is a distinct line of cleavage between basidia and trama and in some cases the basidial layer has separated and curled away from the trama. This region of separation is represented in the microphotograph by a whitish line or band. Such a character has not been seen by the writer in any other species of pore fungus. It is probably correlated with the parallel arrangement of the tramal hyphae mentioned below.

The trama is made up of closely compacted hyphae in which the arrangement is more strikingly parallel than is usually the case. In some the walls have apparently collapsed and so are more or less irregular (plate 15, figure 3). Others are more definite. Cross walls are visible and quite conspicuous in some hyphae, but apparently absent in others. No clamp connections are present. The hyphae are simple or sparingly branched (plate 15, figure 4). Their diameter varies from 1 to 3 μ . In the subiculum the hyphae are more regular and slightly larger, with a diameter of 2 to 6 μ . On some of these hyphae clamp connections are present and quite conspicuous (plate 15, figure 5).

Dr Burt, in the above-mentioned paper, has listed this species as a synonym for *Merulius incrassatus* B. & C., and transferred that species to the genus *Poria*. *Merulius spissus* Peck is also given as a synonym. *Poria pinea* is undoubtedly a *Poria*. In oblique situations the tubes of Peck's types sometimes reach a length of 6 mm, while Dr Burt reports them as up to 3 mm in length. The colors given by Dr Burt are probably based on the Berkeley and Curtis types, as "mouse gray" has not enough brown,

and "aniline black" has too much purple in it to represent Peck's types.

Redescription. Effused for several centimeters, annual, rather tender, separable, with a thin whitish or yellowish sterile margin when young; subiculum very thin, whitish, rather conspicuous; tubes 2 to 6 mm long, their mouths dingy whitish (fide Peck) when fresh, becoming darker where bruised or dried, fuscous or bister in herbarium specimens, angular, thin-walled but entire, averaging 1.5 to 2 to a millimeter; spores ellipsoidal or ovoid, smooth, fuscous, 7.5 to 11 \times 4 to 7 μ ; cystidia none; trama and subiculum compact, of thin-walled, partially collapsing and irregular hyaline hyphae with inconspicuous cross walls and clamp connections, nearly simple, 1-3 μ in diameter.

On wood and bark of pine.

Type locality: Selkirk, N. Y. C. H. Peck. Not otherwise known to the writer.

Poria radiculosa (Peck) Sacc.

Plate 16

Syll. Fung., 6: 314. 1888

Polyporus radiculosus Peck, 40th Rep't N. Y. State Mus., p. 54. 1887

Original description. Resupinate, effused, thin, soft, tender, orange-yellow, the mycelium creeping in and over the wood, silky-tomentose, at first white, then yellow, forming numerous yellow branching rootlike strings or ribs which are more or less connected by a soft silky tomentum; pores rather large, angular, at first shallow, sunk in the mycelium, the dissepiments becoming more elevated, thin and fragile; spores elliptical, .0002 to .00025 inch long, .00016 broad.

Half-buried chips of poplar. *Populus tremuloides*. Gansevoort, September.

The species is allied to *P. vaillantii*, in its peculiar rhizomorphoid strings of mycelium, but from this it differs decidedly in its color and texture. In these respects it approaches *P. bombycinus*, of which it may possibly be a peculiar variety. It is very destructive to the wood on which it grows, causing it to become soft, brittle and even friable.

Notes. From the standpoint of the type collection this species is the most unsatisfactory of all of Peck's *Porias*. Nothing as to general appearance, color etc., can be added beyond that contained

in the original description. There are mounted on the type sheet at Albany six small bits of wood, four of which have only a few rhizomorphic strands of white or cream-colored mycelium. On the other two bits of wood there is perhaps a square centimeter of fruiting surface which apparently represents the marginal growth of the fructification, though on one of these bits the hymenium is well formed (plate 16, figure 1). The chief characteristics of the species appear to be the color, the rhizomorphic strands, and the oblong-ellipsoidal spores (plate 16, figure 6). The spores measure 5 to 7.5 μ in length and 2.5 to 3 μ in breadth. No cystidia are present (plate 16, figure 3). The hyphae of the subiculum and trama are rather characteristic. Many of them are quite irregular in outline and have the appearance of being much collapsed. In the subiculum they are often slightly encrusted and made up of rather short cells with a diameter of 4 to 7 μ . They are very transparent and thin-walled. Clamp connections are present but their walls are so thin and transparent that they easily escape detection. In the trama the hyphae are somewhat smaller, averaging 2 to 4 μ in diameter. Some are with cross walls and clamp connections but in others these are lacking. The hyphae are more or less branched in both the trama and the subiculum (plate 16, figure 4, 5).

In the same folder with the type collection there is another sheet on which is mounted an excellent representation of a species of *Poria* referred by Peck to *P. radiculosa*. Microscopic examination shows, however, that it is not the same plant, though somewhat similar as far as one is able to judge. There are two important differences. The spores in that collection are very short-ellipsoid or subglobose with much smaller dimensions than those in the type collection. They measure only 3 to 5 μ in length and 2 to 3.5 μ in breadth. Another difference is in the hyphae. In this collection they are exceptionally clear-cut in teased preparations as contrasted with the often irregular, ill-defined hyphae in the types. Their dimensions are 2.5 to 4.5 μ . Clamp connections and cross walls are abundant and extremely well defined as contrasted with the often indistinct walls and clamps of the types. These hyphae are frequently branched and hyphal anastomoses are common — both characteristics rare in the type collection.

If the type collection well represented the species, and if in general appearance this second collection were much like the types, the writer would nevertheless hesitate to refer it to this species on the basis of these microscopic differences alone. Since the type collec-

tion is so scanty that its general features can not be determined, it becomes still more important that great caution be used. The writer would like to take this second collection as representing the species, and probably there are those who have gained their idea of the species entirely from this collection. Under the circumstances, however, it seems inadvisable to do so. The date of collection of these second specimens can not be determined from the label. The locality is mentioned as the Catskill mountains, and the locality of the type is Gansevoort. It is possible that Peck had before him both of these collections when describing the species, but there is no evidence to this effect. It seems desirable to allow the matter to rest at this point for the present and to consider that the basis on which the species rests at present should be the original description and the very meager types.

***Poria semitincta* (Peck) Cooke**

Plate 17

Grevillea, 14: 115. 1886

Polyporus (Resupinati) *semitinctus* Peck, 31st Rep't N. Y. State Mus., p. 37. 1879.

Original description. Subiculum thin, soft, cottony, separable from the matrix, whitish, more or less tinged with lilac, sometimes forming branching, creeping threads; pores very short, unequal, whitish or pale cream-colored, the dissepiments at first obtuse, then thinner, toothed on the edge.

Under surface of maple chips. Griffins. Sept.

This is a soft, delicate species, with meruloid pores, similar to those of *P. violaceus*. The lilac stains appear on the subiculum only.

Notes. This is the second species of *Poria* described by Peck. The material in the type collection is rather scanty, but the type sheet contains a second collection, and a third collection is mounted on another sheet. These other collections agree in all respects with the type collection so that a very good idea of the species can be obtained. The largest specimen is 7 cm long and not quite 2 cm broad. The other specimens are more fragmentary, but apparently the fructification is not widely effused (plate 17, figure 1). The color of the hymenial surface is now avellaneous buff to pinkish cinnamon or sometimes with a tinge of the lighter vinaceous colors of Ridgway. A fourth collection is preserved in a herbarium box and was collected from deciduous wood by Peck in 1904 at Lyndon-

ville. This appears to be the same species, and if so is in a much better condition than any of the others. The color is pale ochraceous salmon or light pinkish cinnamon. According to Peck, the fresh specimens are whiter and with a tinge of lilac to the subiculum. Most of the specimens are broadly sterile on the margin, sometimes as much as 4 or 5 mm. This border is finely tomentose but scarcely fimbriate. On some specimens from the type locality and growing on beech leaves, a few white rhizomorphic strands are developed. They are not present where the specimens grow on wood. The thickness of the hymenium-producing portion is less than one-half of a millimeter in the dried specimens. The subiculum is extremely thin and the tubes very short, appearing scarcely more than shallow depressions in the dried specimens. The mouths of the tubes are more or less rounded but unequal in size, averaging about 3 to a millimeter. Peck states that the dissepiments are toothed on the edge. The writer would not describe them as toothed in the sense that the term is ordinarily used as applied to inequalities arising from lacerations of the dissepiments, but they are slightly uneven because one edge of the tube is slightly prolonged beyond the other. The dissepiments are rather thin but entire. There is no sheen or silkiness to the hymenium. The spores are oblong or short cylindric, hyaline, and 3 to 4 μ long by 2 μ broad (plate 17, figure 6). So far as the writer can ascertain from Peck's collections, they are never allantoid at maturity as in *Poria griseoalba*, but in other respects they resemble very much the spores of that species. The basidia measure 2 to 3 μ in diameter. There are no cystidia in the hymenium of most specimens (plate 17, figure 3) but in the Lyndonville collection they are sometimes present as projecting, weakly encrusted hyphae near the mouths of the tubes. The subiculum is rather open in construction, and made up of hyphae that are thin-walled, flexuous, branched, and with rather prominent cross walls that separate the filament into elongated cells (plate 17, figure 5). These are never so short as those frequently found in *Poria griseoalba*, but they are always many times as long as broad, though the dimensions do not appear to be very constant. In the trama the hyphae rarely reach the diameter of the larger ones of the subiculum and at times cross walls are difficult or impossible to make out (plate 17, figure 4). These hyphae vary in diameter from 3 to 7 μ , and hyphal fusions are extremely common. There are no clamp connections on the hyphae. Rarely they are very slightly encrusted with small, scattered granules but these are not noticeable

except under rigid inspection. In several mounts made of the hyphae the peculiar origin of the basidia as illustrated for *Poria griseoalba* was not seen.

From several references already made to *Poria griseoalba* it may be inferred that probably *Poria semitincta* is most closely related to that species. Microscopically the two species are difficult to separate unless the shape of the apparently mature spores, the nature of the origin of the basidia, and the absence in the latter species of the very short hyphal cells be regarded as indicating specific difference. In the former species the mature spores are decidedly allantoid and several times longer than broad, while the only spores observed in *Poria semitincta* were not at all allantoid. Microscopically the two species are somewhat similar in some specimens but in others there is less resemblance. Both are quite thin and light colored when fresh, but the lilac tinge to the subiculum should facilitate their separation in the field. *Poria myceliosa* and *Poria fimbriatella* are also somewhat similar. The latter species may easily be distinguished by the presence of cystidia. The former species has shorter and smaller spores, hyphae 2.5 to 3.5 μ in diameter, and with clamp connections.

No information can be gathered from Peck's collections as to the nature of the decay produced by the fungus.

Redescription. Annual, separable, not broadly effused, with a white, tomentose, sterile margin from which a few rhizomorphic strands are rarely produced; subiculum very thin, noticeable only on the margin, white or with a tinge of lilac in fresh specimens (fide Peck); tubes less than .5 mm long, meruloid in dried specimens, whitish or pale-cream color when fresh (fide Peck), avelaneous to pinkish cinnamon in herbarium specimens, or a light vinaceous shade rarely persisting, the mouths subrounded, averaging 3 to a millimeter; dissepiments thin, entire but often uneven; spores oblong or short cylindric, hyaline, 3 to 4 \times 1 to 2 μ ; basidia 2 to 3 μ in diameter; cystidia none or at least very inconspicuous; trama and subiculum rather open, of loosely arranged, hyaline, flexuous, branched hyphae 4 to 7 μ in diameter; cross walls prominent; clamp connections absent.

On chips of maple (*Acer*) and perhaps woods of other deciduous trees; sometimes overrunning leaves.

Type locality: Griffins, N. Y. C. H. Peck. Also collected by Peck at South Bethlehem, at Ballston, and at Lyndonville.

Poria setigera Peck

Plate 18

51st Rep't N. Y. State Mus., p. 293. 1898

Original description. Effused, tough, thin, adnate, the thin sterile byssine or tomentose margin whitish; pores minute, rotund, shallow, $\frac{1}{6}$ to $\frac{1}{7}$ line wide, smoky brown, suffused with a grayish white pruinosity, the dissepiments entire, their edges and the sterile margin bearing smooth colored setae .003 to .005 in. long, .0005 to .0006 broad.

Bark of red maple, *Acer rubrum*. Gansevoort. July.

This fungus forms patches by confluence several inches in extent. The setae are external and do not appear to develop within the pores. Therefore the species is not a *Mucronoporus*.

Notes. The type collection contains an apparently fair representation of this peculiar and interesting *Poria*, if such it be. The fructifications are effused up to widths of 10 cm (plate 18, figure 1). The color of the hymenial surface is now drab to wood brown or fuscous, and at times suffused with a grayish pruinosity. Each fructification is surrounded by a sterile, cream buff or pinkish buff margin 1 to 4 mm broad (plate 18, figure 2). This margin is slightly pubescent and often with the small, brown, stiff, projecting setae characteristic of the hymenial region (plate 18, figure 4). The thickness of the hymenium-producing portion may be as much as 1.5 mm, of which by far the larger part is apparently the subiculum of the fungus. The tubes are less than one-half of a millimeter in length. Their mouths are more or less rounded, though at times slightly angular and average about 5 to a millimeter. The walls are fairly thick and always entire. There is no sheen or silkiness to the hymenium.

The spores are ellipsoidal or often reniform or boat-shaped, hyaline, and measure 3 to 5 μ in length and 2 to 3 μ in breadth (plate 18, figure 9). The setae are the characteristic structures of this species. They resemble exactly those recently described (Torreya, 17: 202-6. 1917) for *Polyporus glomeratus* Peck, by the writer. They are present both embedded in the trama and in the subiculum (plate 18, figure 3), and project prominently into the lumen of the tubes. Peck states that they are external and apparently do not develop within the tubes, but that is not the case, as can be seen in the illustration. They often project conspicuously from the bottom of the tubes, but many are entirely internal and never

project at all (plate 18, figure 3). As in *P. glomeratus*, they are simply the enlarged pointed ends of special brown hyphae, and in crushed preparations can be traced for considerable distances. Their diameter is 10 to 20 μ . In length they often equal the length of the tubes. There are present also small setae of the usual type, between the basidia (plate 18, figure 3a, 8). These are sharp pointed, and have no connection with the large embedded setae. They measure only 30 to 50 by 5 to 7 μ . The hyphae of the trama and subiculum vary considerably. In the trama and the old subiculum they are decidedly brown under the microscope and cross walls are rather abundant and easily made out. They are branched at frequent intervals and measure 2 to 4 μ in diameter (plate 18, figure 6). In the subiculum of the growing light-colored margin the hyphae are hyaline, thin-walled, and cross walls are rarely seen. These hyphae are branched, are usually quite flexuous, and the terminal branches frequently taper out to a long narrow point (plate 18, figure 7). The diameter of the larger of these hyphae is 2 to 5 μ .

The relationships and indeed perhaps even the autonomy of the species are open to question. From a study of the type collection the writer obtains no evidence that the species is not simply an unusual species of *Poria*, but the appearance and other characteristics are unlike those of any other species.

Redescription. Annual, effused for several centimeters, inseparable (fide Peck), with a whitish or cream buff sterile margin up to 4 mm broad and often beset with the setae described below; subiculum brown, 1.5 mm thick, much thicker than the length of the tubes; tubes very short, their mouths mostly rounded, drab to wood brown or fuscous and sometimes with a grayish pruinosity, averaging about 5 to a millimeter; dissepiments fairly thick, entire; spores ellipsoidal to reniform, hyaline, 3 to 5 \times 2 to 3 μ ; setae abundant, of two types: large (10 to 20 μ diameter) brown, pointed bodies in the trama, the subiculum, and projecting from the hymenial surface; small (30 to 50 \times 5 to 7 μ), pointed, of usual type, between the basidia; trama and subiculum compact, of brown, branched hyphae with many and conspicuous cross walls but no clamp connections, 2 to 4 μ in diameter; marginal subiculum with hyphae hyaline, branched, no cross walls, branches often tapering to a fine point, no clamp connections, 2 to 5 μ in diameter.

On bark of red maple.

Type locality: Gansevoort, N. Y. C. H. Peck. Not otherwise known to the writer.

***Poria subacida* (Peck) Sacc.**

Plate 19; plate 20; plate 21; figure 6

Syll. Fung., 6: 325. 1888

Polyporus (*Physisporus*) *subacidus* Peck, 38th Rep't N. Y. State Mus., p. 92-93. 1885

Original description. Effused, separable from the matrix, tenacious, flexible, uneven, determinate, the margin downy, narrow, pure white; pores small, subrotund, 1 to 3 lines long, often oblique, whitish inclining to dingy-yellowish, pale tan color or dull cream color, the dissepiments thin, more or less dentate; odor strong, subacid.

Prostrate trunks and decaying wood of various trees, hemlock, spruce, birch etc. Osceola. July.

This species is not rare, but it has probably been confused with its allies. It forms extensive patches, sometimes several feet in length. It adheres somewhat closely to the matrix, but its texture is so tough that it is generally easy to strip it from its supporting substance. It is apparently closely related to *P. medullapanis*, but the description of that species gives the pores as medium size and entire, and makes no mention of any odor, in consequence of which we have thought our plant distinct. It is however, extremely variable.

Var. *tenuis* is very thin, scarcely a line thick, with short pores and surface nearly even. It occurs on the smooth decorticated trunks of hemlock.

Var. *tuberculosis* has the surface more or less roughened by unequal prominent tubercules, which are either scattered or clustered. They appear to be a monstrous development of the mycelium on the surface of the pores.

Var. *stalactiticus* incrusts mosses and therefore has the surface very uneven with numerous and unequal porous protuberances. It most often occurs on prostrate mossy trunks of birches.

Var. *vesiculosus* (*P. vesiculosus* B. & C.) has shallow scattered pores as if formed from ruptured vesicles.

Specimens of this *Polyporus*, unless dried under pressure, shrink and roll up in unmanageable shapes. They often contain considerable moisture when collected, and if put in press in this condition they are liable to become brown or blackish in drying. Specimens collected in a dry time or in dry situations retain their characters best. The thinner forms, if partly dried before they are put in press, sometimes retain their color and characters well. When grow-

ing on bark the patches are sometimes interrupted and irregular, in which case the margin is broader than usual and well defined.

Notes. The type collection contains four small slabs of material mounted on a herbarium sheet and as much more preserved in a herbarium packet. It represents very well the species as the writer has come to know it in the eastern United States (plate 19, figure 1). Two other sheets of specimens are contained in the same folder and there is also one small box of specimens. In another folder are the original collections representing varieties recognized by Peck. All but one are from the wood of coniferous trees, either spruce or pine. Apparently these are all the labeled collections in Peck's herbarium, though it is such a common species that a search through the undetermined material would probably yield as many more collections. Recent material collected in abundance by Weir in the northwest and referred to this species shows a considerable range of variation not exhibited by eastern collections. These western forms will be discussed separately later, as some might not agree with Doctor Weir and the writer as to their identity.

The largest specimens of the type collection are 10 cm long and about 7 cm broad. Other eastern collections sometimes show a much greater expanse of growth. The color of the hymenial surface is pinkish buff to avellaneous in herbarium specimens but fresh specimens are often white or whitish, becoming darker when bruised. Peck states that it is separable from the matrix, but this is true only when growing on a rather smooth surface. Such specimens when separated have a peculiar appearance to the contact surface, which seems more or less characteristic of such forms. When so separated and dried, specimens curl badly and become rather hard and rigid. But when growing on an uneven surface such as the bark of a tree, it is impossible to separate the fungus in entirety from the substratum.

Younger specimens have a conspicuous, sterile, tomentose margin sometimes 5 to 6 mm broad. This becomes narrower as specimens mature and in rare cases entirely disappears. Usually it persists to some extent and where the entire expanse of growth is present in specimens it is easily seen. This border is fairly even, not at all fimbriate, and is somewhat lighter in color than the hymenial surface. The thickness of the specimens of an eastern origin varies considerably, being from one-half of a millimeter to 6 mm. Based on the thinnest of such forms. Peck described the variety *tenuis*

(plate 21, figure 6). Of this thickness the major part is composed of the tube lengths. The subiculum is rather thin and in mature specimens often nearly extinct. The tubes vary from one-half of a millimeter to 6 mm in length, the latter measurements sometimes attained where the tubes are in an oblique position. In well-formed specimens their lengths run from 2 to 4 mm in eastern collections. The mouths of the tubes are rounded or slightly angular, averaging 3 to a millimeter. The walls of the dissepiments are rather thin but entire. Most often there is no sheen or silkiness to the hymenium but in some few specimens considerable luster is developed.

The spores are ellipsoidal sometimes markedly oblong-ellipsoidal or ovoid, some with an oblique apiculus (plate 20, figure 7), hyaline, 4.5 to 6 μ long, and 2.5 to 3.5 μ broad. The cystidia vary considerably and the structures so referred may not be true cystidia at all. Sometimes they are scarcely more prominent than basidia and such are to be distinguished only by their pointed apex. At other times they are quite conspicuous, two or three times thicker than the basidia and with a rounded, swollen apex, or swollen toward the top but the apex itself blunt pointed. These structures are represented in the illustration, plate 20, figures 3, 4. Their size varies from 15 to 20 μ long and 5 to 7 μ in diameter at the thickest part in the larger forms. They appear to occur constantly in the type specimens and in most other collections examined. The hyphae of the trama are compactly arranged and their diameter varies from 2 to 5 μ . They are simple or only rarely branched and as far as revealed by the ordinary powers of the microscope no cross walls are present and no clamp connections. The hyphae of the subiculum are often considerably larger (4 to 7 μ) but in other respects they do not differ from those of the trama (plate 20, figures 5 and 6). Many of the hyphae from both regions have quite thick walls similar to those in the hyphae of *P. indurata*. Irregular crystals are usually abundant on and in the hymenium.

The affinities of the species are with such as *Poria pulchella*, *Poria medullapanis* and *Poria ornata*. From the last mentioned it appears to differ constantly in the much greater diameter of the hyphae, which in those two species (as interpreted by the writer) are only 1 to 3 μ in diameter and considerably branched. The hyphae of *P. pulchella* appear to be intermediate in diameter between those of these species. There are differences of appearance, however, hard to describe, which have so far enabled the writer to separate these two species.

The substratum is nearly always a coniferous log, though Peck himself collected it (var. *stalactiticus*) (plate 19, figure 2) on birch logs, and the writer has several collections from different deciduous hosts.

Two other varieties were described by Peck (see var. *tenuis* also above): Var. *tuberculosa* with the surface roughened by unequal prominent tubercles (plate 19, figure 4) and var. *vesiculosa* "with shallow scattered pores as if formed from ruptured vesicles" (plate 19, figure 3). All these appear to belong to the species and probably represent isolated occurrences of anomalous forms owing their existence to abnormalities of growth or affected by the nature of the substratum on which they grew.

Peck noted a strong subacid odor to fresh specimens of the species. This has not been noted by the writer and no mention is made by various careful collectors who have sent in material of the species.

Through the kindness of Dr J. R. Weir, of Missoula, Montana, the writer has had the opportunity of examining a large series of collections of a western species sent for determination. At first these were referred to *P. pulchella* by the writer. After examination of a larger series of specimens the writer identified certain collections with *P. subacida*. Further correspondence with Doctor Weir gave undoubted indications that a much larger number of the collections should be so referred, and a more recent comparison verifies the opinion. These western specimens differ from those of eastern collections in a few particulars, and in the absence of connecting forms would hardly be referred to the same species. The chief difference is in the thickness of the fructification. Specimens more than 1 cm thick are not unusual, and Doctor Weir states that specimens an inch or more in thickness are sometimes found. Such specimens are of course perennial. This condition is not much different from that often shown by *P. pulchella*, where some specimens are quite thin, and others 1 cm or more thick. The color is somewhat different in these forms, with more yellow in young specimens and with thicker and older specimens of a smoke gray color.

Redescription (based on eastern collections only). Annual, effused from a few centimeters to a foot or more, separable or on uneven surfaces more unseparable, with a light-colored, sterile, tomentose margin, 5 to 6 mm broad or narrower in mature specimens; subiculum thin, white, not conspicuous; tubes when well

developed 2 to 4 mm long, longer in oblique positions, shorter at times, their mouths whitish or light yellow, darker when bruised and pinkish buff to avellaneous in herbarium specimens, rounded or somewhat angular in outline, averaging 3 to $3\frac{1}{2}$ to a millimeter, the dissepiments rather thin but entire; spores ellipsoidal or oblong ellipsoidal, smooth, hyaline, sometimes obliquely apiculate, 4.5 to 6×2.5 to 4μ ; cystidia represented by small sterile organs, usually clavately thickened at apex or thickened above but with a blunt-pointed apex, 5 to 7μ in diameter; tramal tissue of rather closely compacted hyaline hyphae, unbranched, apparently without cross walls or clamp connections, 4 to 6μ in diameter.

On wood of coniferous trees, especially spruce; more rarely on wood of deciduous trees.

Type locality: Osceola, N. Y. C. H. Peck. Frequent in the northeastern United States and perhaps widely distributed across the northern half of the country.

Poria subiculosa (Peck) Cooke

Plate 21, figures 1-5

Grevillea, 14: 114. 1886

Polyporus (Resupinati) subiculosus Peck, 31st Rep't N. Y. State Mus., p. 37. 1879

Original description. Subiculum widely effused, dense, but soft and downy tomentose, tawny, cinnamon; pores forming patches upon the subiculum, short, unequal, sometimes slightly labyrinthiform, cinereo-ferruginous, ferruginous-brown when bruised, the dissepiments when young whitish and pruinose-villose.

Creeping over mosses, decaying wood, and even stones, in sheltered places. Copake. Oct.

The patches are several inches in extent. The pores have a paler hue than the subiculum, but they become darker when bruised.

Notes. This anomalous species is well represented on the type sheet though the material is not abundant. A second collection is preserved in a herbarium box. The largest specimen is about 9 cm long and 6 cm broad. A dense, soft subiculum is first formed over the surface of the substratum and upon this the pores later develop (plate 21, figure 1). The color of the mature hymenial surface is wood brown to cinnamon or near ochraceous tawny. In consistency even the dried plants are soft and coriaceous. A wide, sterile, subiculose margin (frequently as much as 3 cm broad) often surrounds the hymenium. The color of this is clay color to ochraceous tawny or buckthorn brown and it is extremely soft and

feltlike. The thickness of the hymenium-producing portion is 2 to 4 mm, of which the subiculum sometimes represents as much as half. This latter is soft and feltlike and brown in color. The tubes are 1 to 2 mm long. Their mouths are angular, irregular or slightly daedaloid and measure 1 to 2.5 to a millimeter. The dissepiments are at maturity rather thin and entire or slightly denticulate. There is no sheen or silkiness to the hymenium.

The spores are broadly ovoid or broadly ellipsoidal to subglobose, hyaline and measure 5 to 7 by 3 to 5 μ (plate 21, figure 5). There are no cystidia (plate 21, figure 2). The hyphae are of two general sizes. Those of the sterile subiculum are the larger and are heavy-walled, brown in color and with evident cross walls and little or no branchings (plate 21, figure 4). Their diameter is 5 to 7 μ . Those of the trama are considerably smaller, 3 to 6 μ in diameter. Some of these are brown and a few are nearly or quite colorless. Branching is more frequently found in these than in the hyphae of the subiculum, and cross walls are not uncommon (plate 21, figure 3). These hyphae are more flexuous and somewhat thinner walled than those in the subiculum.

The species apparently has no near relatives that are at all common in this country. A collection has been recently received from E. T. Harper, collected on an arbor vitae log at Neebish, Michigan, October 1917. This specimen has persisted for three years, forming a new layer of tubes each year. Lloyd reports (letter no. 63, p. 16) a collection from Wisconsin by Dr C. J. Humphrey.

Redescription. Annual or reviving for two or three years, easily separating, effused for several centimeters, general color brown; consisting at first of a soft brown subiculum on which pores are developed; subiculose margin broad, sterile, feltlike, clay color to ochraceous tawny; subiculum conspicuous, brown, up to 2 mm thick, soft and floccose; tubes 1 to 2 mm long, their mouths near cinnamon or ochraceous tawny, angular to irregular or slightly daedaloid, averaging 1 to 2.5 to a millimeter, with rather thin and entire or denticulate dissepiments; spores broadly ovoid to broadly ellipsoidal or subglobose, hyaline, 5 to 7 \times 3 to 5 μ ; cystidia none; hyphae of margin thick-walled, brown, 5 to 7 μ in diameter, simple, cross walls rather numerous, no clamp connections; hyphae of trama more flexuous, brown or sometimes hyaline, 2.5 to 5 μ in diameter, otherwise as above.

Creeping over mosses, decayed wood, etc.

Type locality: Copake, N. Y. C. H. Peck. Also collected by Peck at Freeport, N. Y., and by E. T. Harper at Neebish, Mich.

Poria sulphurella (Peck) Sacc.

Plate 22, figures 1-5

Syll. Fung., 9: 190. 1891

Polyporus sulphurellus Peck, 42d Rep't N. Y. State Mus., p. 123 (Bot. ed., p. 27). 1889

Original description. Resupinate, effused, very thin, following the inequalities of the matrix, subiculum and margin downy, white; pores very short, minute, rotund, very pale yellow, often with a slight salmon tint, the dissepiments obtuse.

Dead bark of poplar, Catskill mountains. Sept.

Notes. The type material of this species is somewhat scanty, consisting of four small specimens on bark and mounted on a herbarium sheet. The name should not be confused with *Daedalea sulphurella* Peck, a resupinate species described later in this paper, and thought by Peck to have affinities with the genus *Daedalea*. In view of the fact that both species are resupinate it would have been better had the *Daedalea* species been given another name.

The largest piece of bark bearing the type specimens is about 9 cm long and 3 cm broad but less than half of its surface is covered by the fungus (plate 22, figure 1). The color of the hymenial surface is at present light buff or pinkish buff. At first the fructifications are surrounded by a narrow, very thin, sterile, pubescent border which may in part disappear as the plants mature. The thickness of the mature fruiting portion is only about three-fourths of a millimeter in the thickest parts, and in places is considerably thinner. Of this thickness the larger part is made up of tube lengths, the subiculum being very thin and nearly invisible. The mouths of the tubes are rounded and even in the most mature specimens, and average 5 to 6 to a millimeter. The dissepiments are nearly as thick as the diameter of the tubes, and except in the more mature specimens are very finely pubescent. They are very regular and entire. There is no sheen or silkiness to the hymenium.

The spores are short cylindric and for the most part curved. They are colorless and 3 to 5 μ long by 1 to 2 μ broad (plate 22, figure 5). They are not abundant in the specimens but are not hard to find both free floating and on basidia. There are no cystidia in the hymenium (plate 22, figure 2). The trama is not very compact and is composed of hyaline, thin-walled hyphae that are usually quite flexuous and more or less branched (plate 22, figure 4).

Few cross walls and clamp connections are recognizable on these hyphae. The hyphae of the sterile margin and subiculum are somewhat different, being long and straight, simple or infrequently branched, and with abundant and conspicuous clamp connections (plate 22, figure 3). Cross walls are apparent only where clamp connections are present. The diameter of both types of hyphae is quite small, up to $2.5\ \mu$.

In general appearance the species bears some resemblance to *Poria semitincta* and to resupinate forms of *Polyporus semipileatus* Peck. But from both it differs in the much smaller diameter of the hyphae, and from the former also in the considerably smaller tubes.

Redescription. Effused for several centimeters, annual, separable (?), very thin, light of color, with a narrow, sterile pubescent, white margin at least when young; subiculum very thin and inconspicuous, white; tubes up to .75 mm in length, their mouths light buff or pinkish buff, rounded, averaging 5 to 6 to a millimeter, the dissepiments relatively thick, slightly pubescent when young, quite even and entire; spores cylindric or allantoid, hyaline, 3 to 5×1 to $2\ \mu$; cystidia none; trama of loosely arranged, hyaline, thin-walled, flexuous hyphae, sometimes branched, cross walls and clamp connections not often apparent; subiculum hyphae straight, simple, with conspicuous clamp connections at the cross walls; diameter of both types 1 to $2.5\ \mu$.

On dead bark of poplar.

Type locality: Catskill mountains, N. Y. C. H. Peck. Not otherwise known to the writer.

Daedalea sulphurella Peck

Plate 23

44th Rep't N. Y. State Mus., p. 21. 1891

Original description. Resupinate, effused or nodulose, pale sulphur-yellow; pores short, labyrinthiform, the dissepiments often lacerated and irpiciform in the dry plant; spores subglobose or broadly elliptical, .0002 in. long.

Much decayed wood. Salamanca. September.

Mostly very irregular or nodulose, following the irregularities of the wood and encrusting mosses. It is of a beautiful pale yellow color when fresh, but it changes to a dull pallid hue when dry.

Notes. This is an extremely unsatisfactory species from the standpoint of the type collection, and no other material is available. In the box of type specimens are many small bits of rotten wood some of which are covered by the fungus that for the most part one would hardly refer to the pore fungi at all. There are only a few small pieces that show the nature of the hymenium. The fragments that are mature suggest an *Irpex* (Hydnaceae) rather than a *Daedalea*, and in some specimens there project isolated rounded teeth from the substratum. The writer is inclined to believe that the fungus does not belong in this group, but since it was so described by Peck it will be presented here.

The largest fragments of fruiting bodies are scarcely more than 1 cm broad, but some fragments showing no hymenial configuration are somewhat larger. These last mentioned have the appearance of a species of *Corticium* (plate 23, figure 1). The color of the fungus is now pinkish buff or cinnamon buff all over, but was described by Peck as sulphur yellow in the fresh plant. The surface of the fructification is very uneven, following the inequalities of the wood. The thickness of the fungus, including the length of the teethlike projections, is not more than a millimeter, and where no teeth are present it is extremely thin. The spore-producing layer covers the surface of what appear to be platelike teeth or in some cases awl-shaped projections. These teeth are for the most part connected at the base as in *Irpex*, or as might happen if the dissepiments were much torn or split. The presence of isolated teeth; however, seems to favor the idea that the proper place for the species is among the Hydnaceae. The fungus was growing in part on a vertical substratum which would exaggerate the sinuous character of the hymenium.

Some parts of the fungus are mature and spores are produced in abundance. These are broadly ellipsoidal or globose, hyaline, and measure 4 to 6 μ in globose forms. The ellipsoidal spores are 5 to 6 μ long and 4 to 5 μ broad (plate 23, figure 4). Often a slight apiculus is visible, and frequently the spore contains a large hyaline oil globule that practically fills it. The basidia are 5 to 6 μ in diameter. The trama and subiculum are fairly compact and composed of colorless thin-walled hyphae that are 2.5 to 6 μ in diameter. They are much branched and cross walls are rather conspicuous and fairly abundant. A large percentage of these walls have clamp connections, but not all of them (plate 23, figure 3).

As stated above, the affinities of the species are in doubt and its true character can never be determined until more material is collected.

Redescription. Effused, quite irregular and sometimes nodulose, thin and annual; hymenium covering the surface of configurations originally described as labyrinthiform pores but appearing in dried plants more as teeth, isolated and terete or flattened and connected at the base, pale sulphur-yellow (fide Peck) in fresh specimens, uniformly pinkish buff or cinnamon buff in dried plants, not more than 1 mm long; spores broadly ellipsoidal or globose, hyaline, 5 to 6 x 4 to 5 μ or 4 to 6 μ in diameter; trama and subiculum compact, of thin-walled, hyaline, much branched hyphae, 2.5 to 6 μ in diameter, with evident cross walls and frequent clamp connections.

On rotten wood.

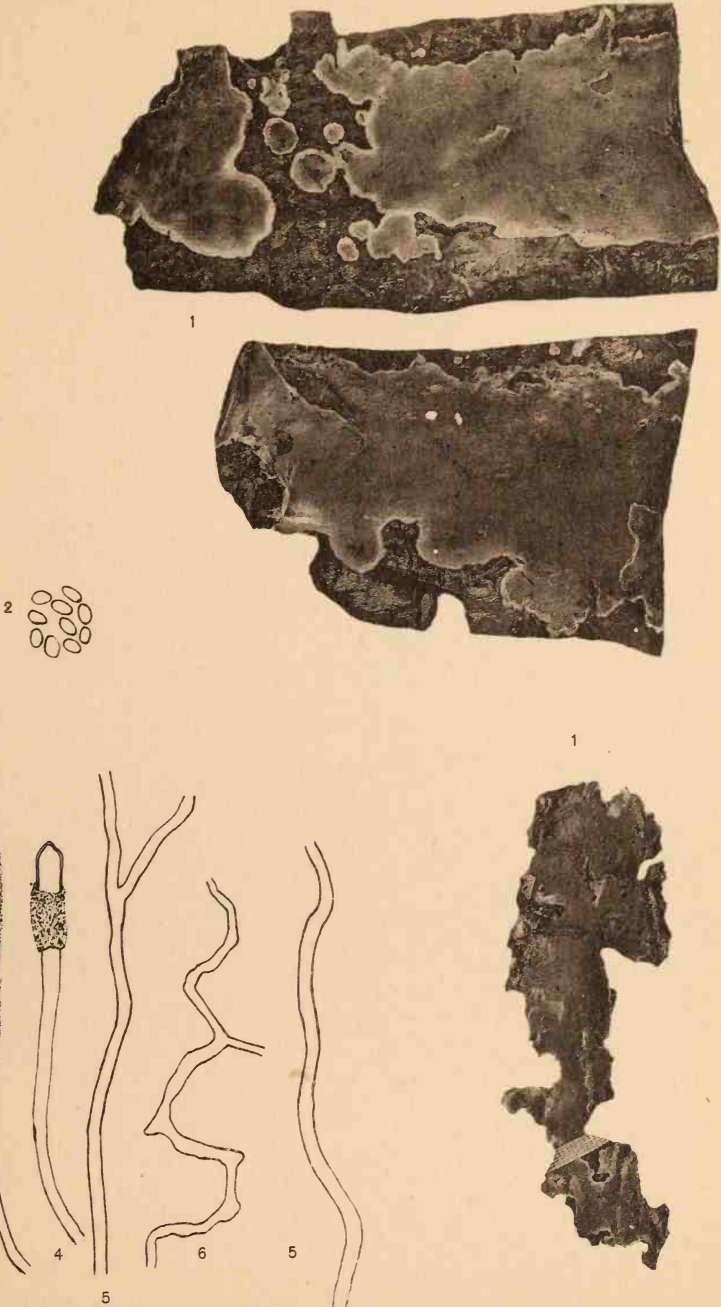
Type locality: Salamanca, N. Y. C. H. Peck. Not otherwise known to the writer.

EXPLANATION OF PLATES

Plate 1

Poris attenuata (Peck) Sacc.

- 1 Mature and typical plants from Westport, N. Y. In the New York State herbarium. x 1.
- 2 Mature spores.
- 3 A single cystidium showing how these bodies are formed by the enlargement and the encrusting of the ends of hyphae. From teased preparations.
- 4 A cystidium with part of encrustation removed.
- 5 Hyphae from the subiculum and the trama.
- 6 More irregular hypha occasionally found in the trama.
- 7 Portion of the type collection of this species. x 1.



PORIA ATTENUATA (Peck) Sacc.

Plate 2

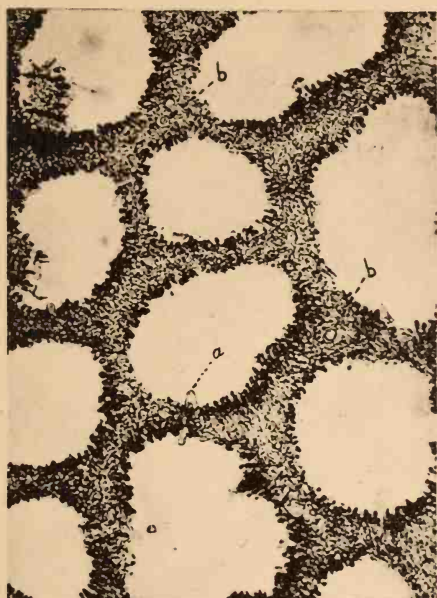
123

Poria attenuata (Peck) Sacc.

- 1 Microphotograph of cross section of the hymenium, x 160.
 - a Projecting cystidium.
 - b Cross section of a cystidium embedded in the trama.
- 2 Vertical section of a part of a single tube showing obliquely projecting cystidia. x 320.

Poria attenuata var. *subincarnata* Peck

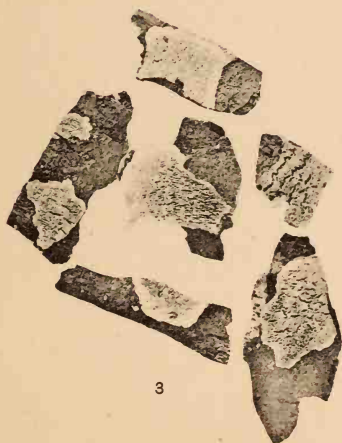
- 3 Fragments from specimens in the type collection. x 1.
- 4 Mature spores.
- 5 Encrusted hypha from the subiculum on the growing margin of one specimen.
- 6 Unencrusted hyphae as found in the trama and sometimes the subiculum.



1



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Fig. 1-2 *PORIA ATTENUATA* (Peck) Sacc.

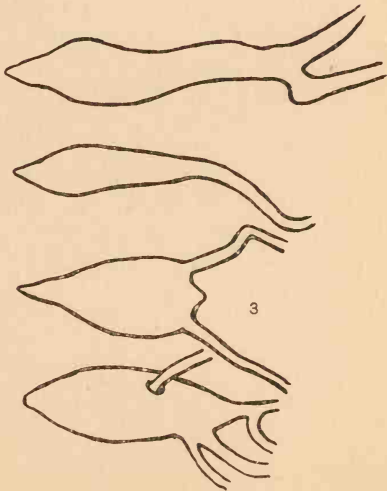
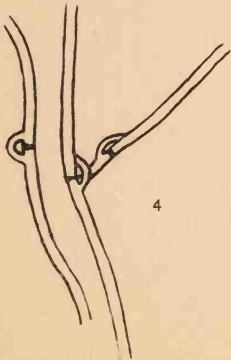
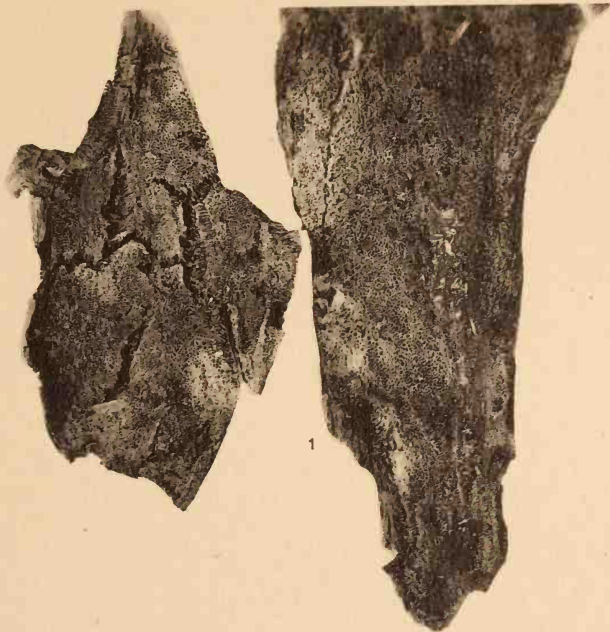
Fig. 3-6 *PORIA ATTENUATA* var. *SUBINCARNATA* Peck

Plate 3

125

Poria aurea Peck

- 1 Specimens from the type collection. x 1.
- 2 Mature spores.
- 3 Various forms of cystidia found in the hymenium.
- 4 Hyphae from the trama and the subiculum.



PORIA AUREA Peck

Plate 4

127

Poria aurea Peck

- 1 Microphotograph of cross section of the hymenium, showing numerous projecting cystidia. x 160.
- 2 Small portion of the hymenium of figure 1 enlarged to show cystidia. x 320.

Poria fimbriatella (Peck) Sacc.

- 3 Specimen in the herbarium New York State Museum, from Ampersand pond, N. Y. x 1.

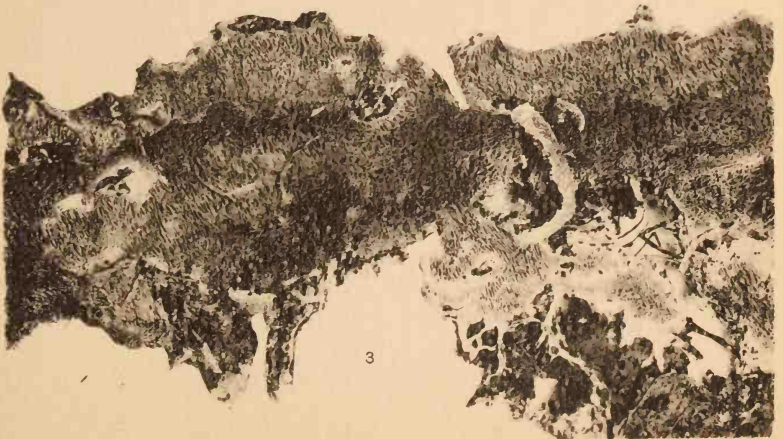
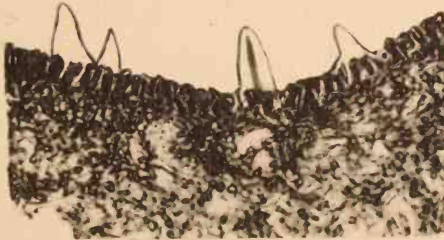
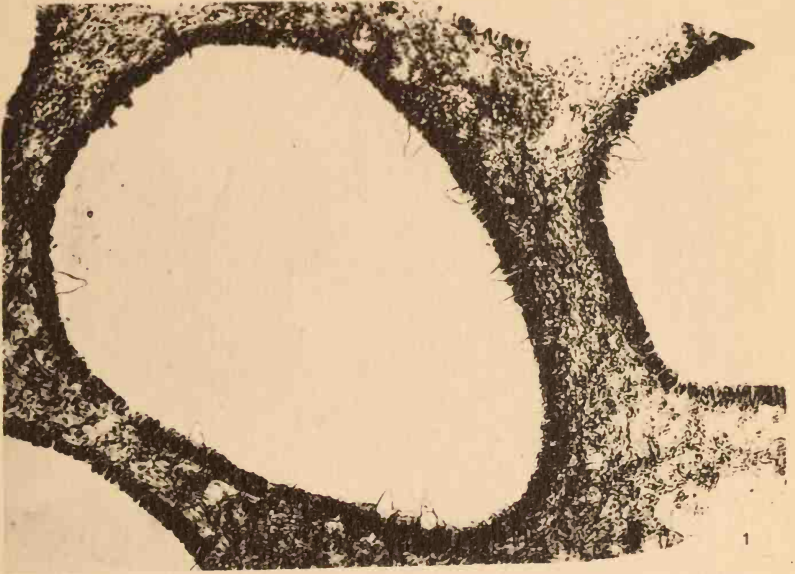


Fig. 1-2 *PORIA AUREA* Peck
Fig. 3 *PORIA FIMBRIATELLA* (Peck) Sacc.

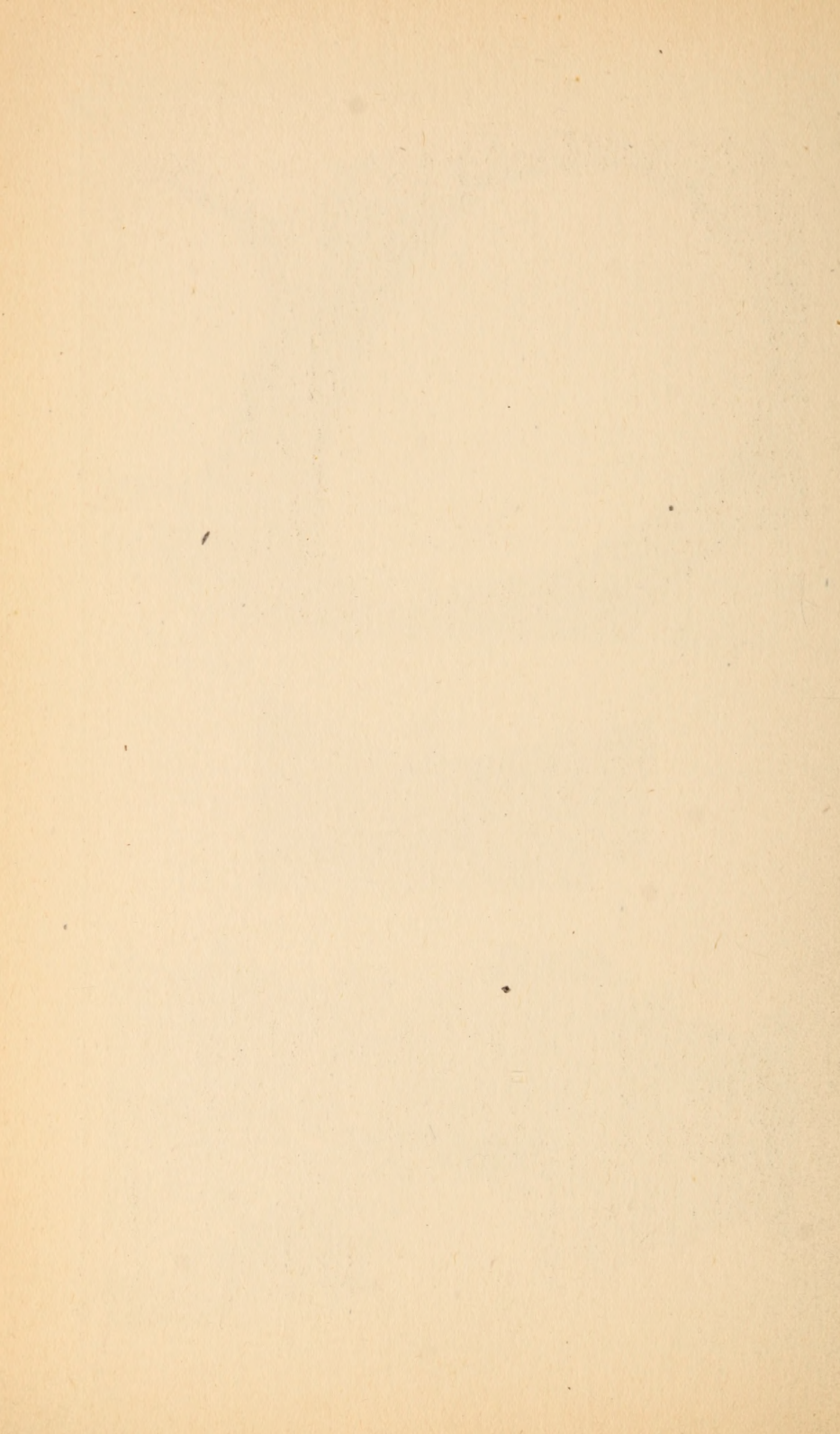


Plate 5

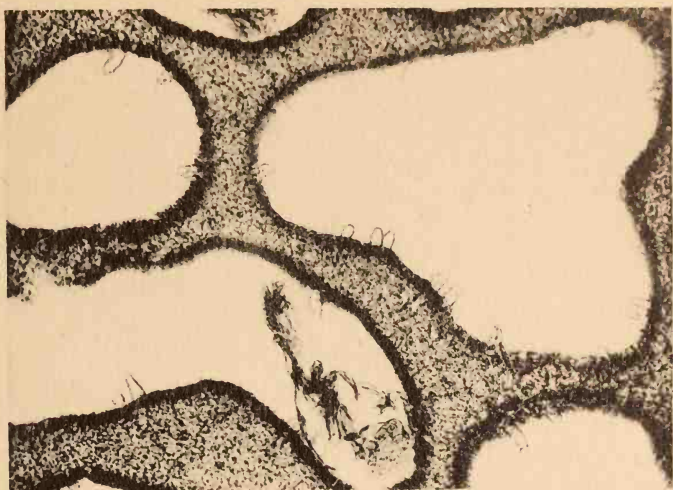
129

Poria fimbriatella (Peck) Sacc.

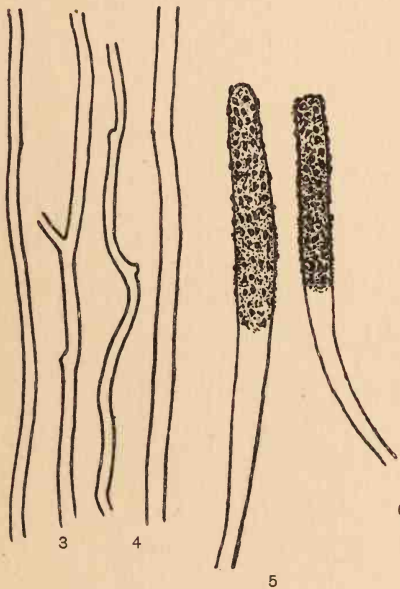
- 1 Microphotograph of cross section through hymenium, showing projecting cystidia. x 160.
- 2 Portion of a cross section of hymenium enlarged to show cystidia. x 320.
- 3 Hyphae from the trama.
- 4 Hyphae from the subiculum.
- 5 Cystidium from the hymenium of the type collection.
- 6 Cystidium from the hymenium of the collection from Ampersand pond, N. Y.
- 7 Mature spores.
(See also plate 22, figure 6, for specimen from the type collection).

Poria griseoalba (Peck) Sacc.

- 8 Specimens from the type collection. x 1.



1

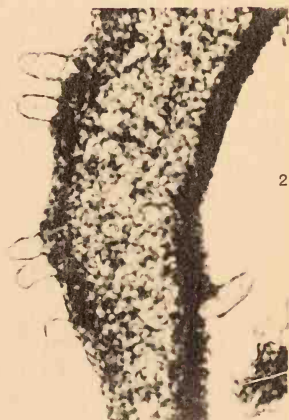


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Fig. 1-7 *PORIA FIMBRIATELLA* (Peck) Sacc.

Fig. 8 *PORIA GRISEOALBA* (Peck) Sacc.

Plate 6

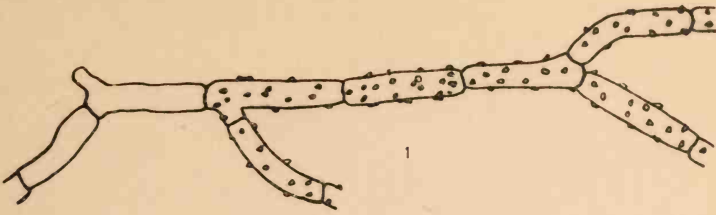
131

Poria griseoalba (Peck) Sacc.

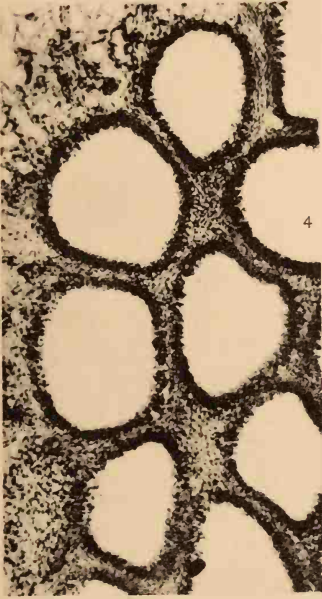
- 1 Encrusted hypha from the subiculum.
- 2 Hypha from the trama, showing the origin of the basidia. See text.
- 3 Anastomosing hyphae from the subiculum.
- 4 Microphotograph of cross section of the hymenium. x 160.
- 5 Mature spores.

Polyporus induratus Peck

- 6 Specimens in the type collection. x 1.
- 7 Hypha from specimens in type collection.



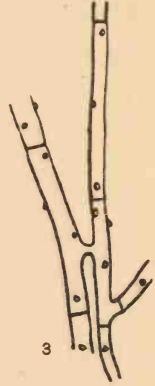
1



4



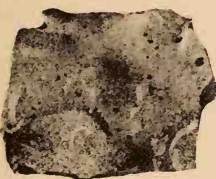
2



3



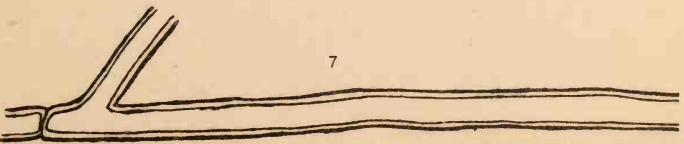
5



6



6



7

Fig. 1-5 *PORIA GRISEOALBA* (Peck) Sacc.
Fig. 6-7 *POLYPORUS INDURATUS* Peck

Plate 7

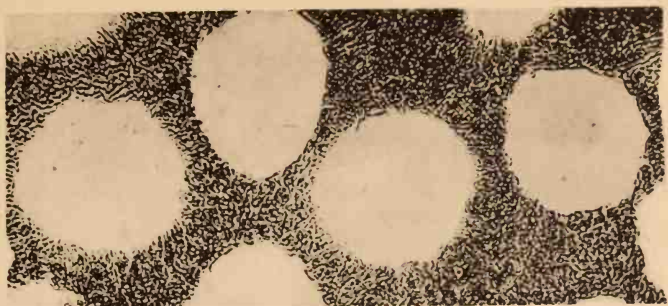
133

Polyporus induratus Peck

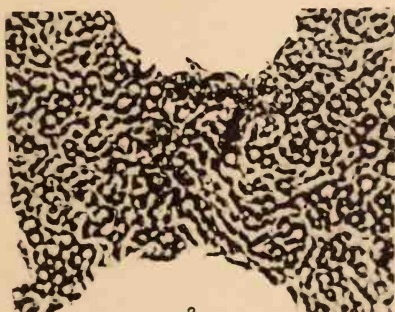
- 1 Cross section of the hymenium from specimens in the type collection. x 160.
- 2 Small portion of the trama as seen in cross section and enlarged. x 320.
- 3 Enlarged lateral view of a vertical section through one of the specimens in the type collection. Made with Bausch and Lomb Micro-Tessar lens. x 10.

Poria laetifica (Peck) Sacc.

- 4 Specimen from the herbarium of L. O. Overholts, no. 3431.
- 5 Hyphae from the trama and the subiculum.
- 6 Mature spores from collection in herbarium of L. O. Overholts, no. 3431.



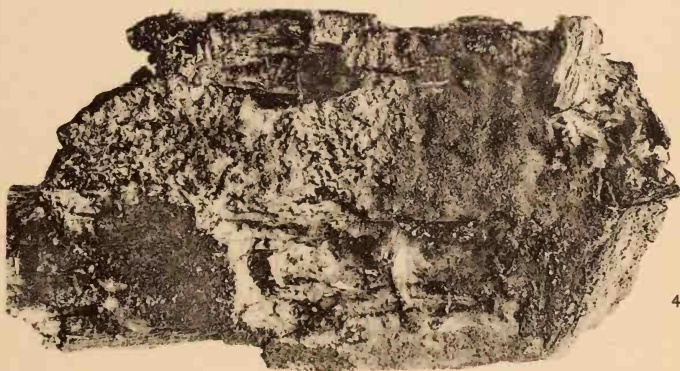
1



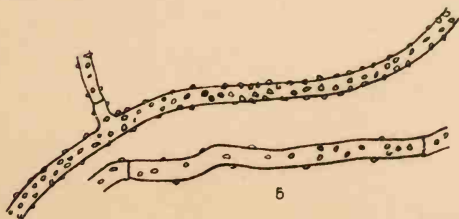
2



3



4



5



6

Fig. 1-3 POLYPORUS INDURATUS Peck
Fig. 4-6 PORIA LAETIFICA (Peck) Sacc.

Plate 8

135

Poria laetifica (Peck) Sacc.

- 1 Photograph of specimen from the type material. x 1.
- 2 Microphotograph of cross section of the hymenium. x 160.

Poria macouni (Peck)

- 3 Photograph of the single specimen in the type collection. x 1.
- 4 Hyphae from the trama and the subiculum.
- 5 Mature spores.
- 6 Microphotograph of cross section of the hymenium showing prominent setae. x 160.

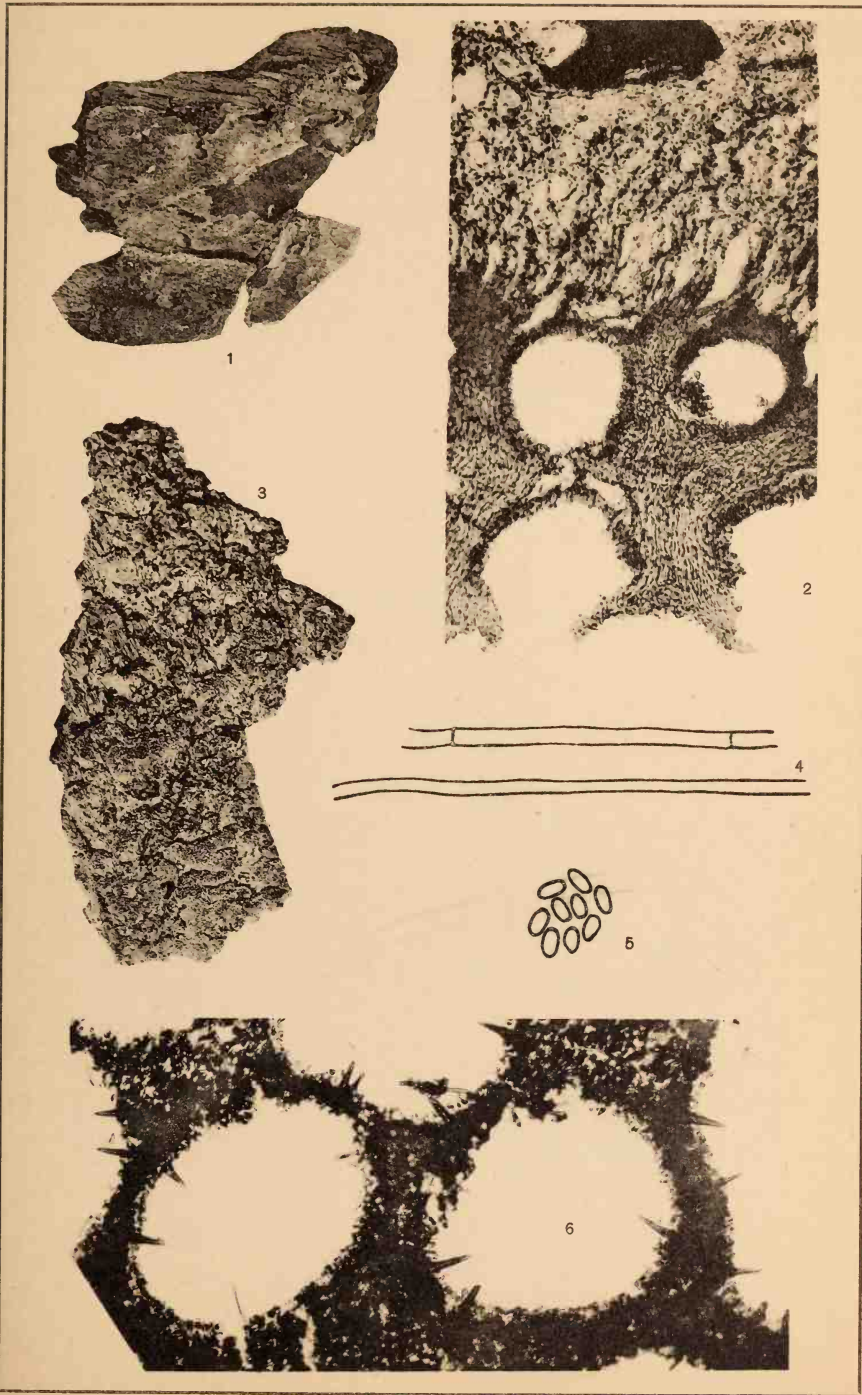


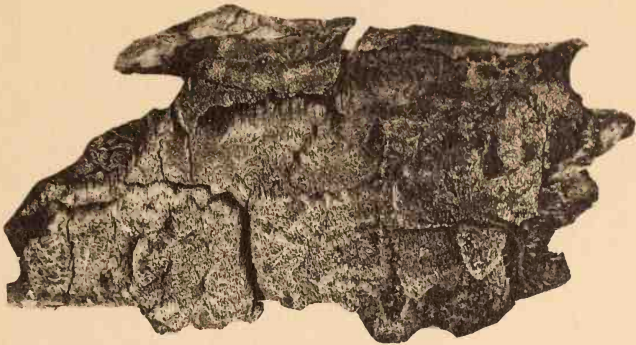
Fig. 1-2 *PORIA LAETIFICA* (Peck) Sacc.
Fig. 3-6 *PORIA MACOUNI* (Peck) Overholts

Plate 9

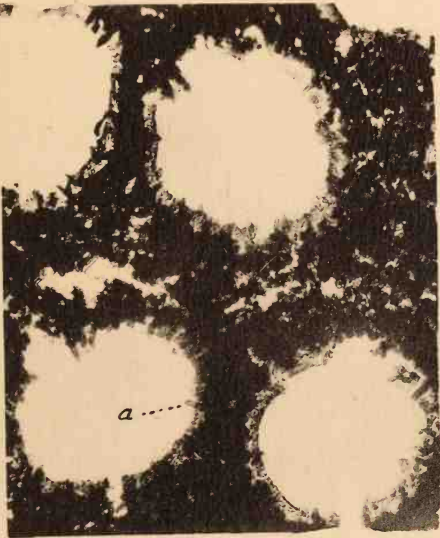
137

Poria marginella (Peck) Sacc.

- 1 Specimens from the type collection. x 1.
- 2 Microphotograph of cross section of the hymenium showing setae, as at *a*. x 160.
- 3 Small section of the hymenium enlarged to show setae, *b*. x 320.
- 4 Setae from the hymenium, as obtained in crushed preparations.
- 5 Mature spores.
- 6 Hyphae from the subiculum and the trama.



1



a



b

3

2



5



4



6



PORIA MARGINELLA (Peck) Sacc.

Plate 10

139

Poria mutans (*Peck*) *Sacc.*

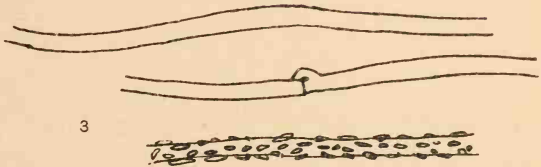
- 1 Specimens from the type collection. x 1.
- 2 Mature spores.
- 3 Hyphae from the subiculum and the trama.
- 4 Microphotograph of cross section of the hymenium. x 160.

Poria mutans var. *tenuis* *Peck*

- 5 Specimens from the type collection. x 1.



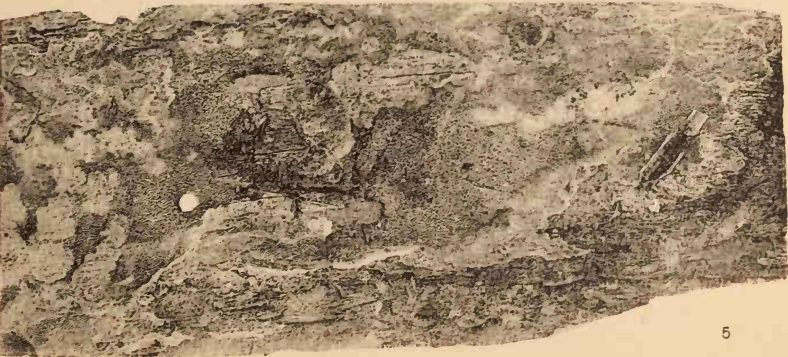
2



3



4



5

Fig. 1-4 *PORIA MUTANS* (Peck) Sacc.
Fig. 5 *PORIA MUTANS* var. *TENUIS* Peck

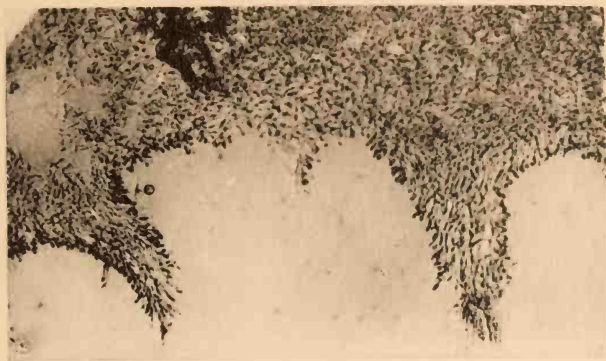
Plate II

Poria mutans var. *tenuis* Peck

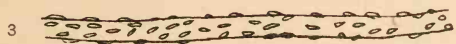
- 1 Microphotograph of vertical section through the hymenium.
x 160.
- 2 Spores found free-floating in sectional preparations (see text).
- 3 Encrusted hyphae from the subiculum.
- 4 Hyphae from the trama.

Poria myceliosa Peck

- 5 Specimen from the type collection. x 1.



1



3



4



2



5

Fig. 1-4 *PORIA MUTANS* var. *TENUIS* Peck
Fig. 5 *PORIA MYCELIOSA* Peck

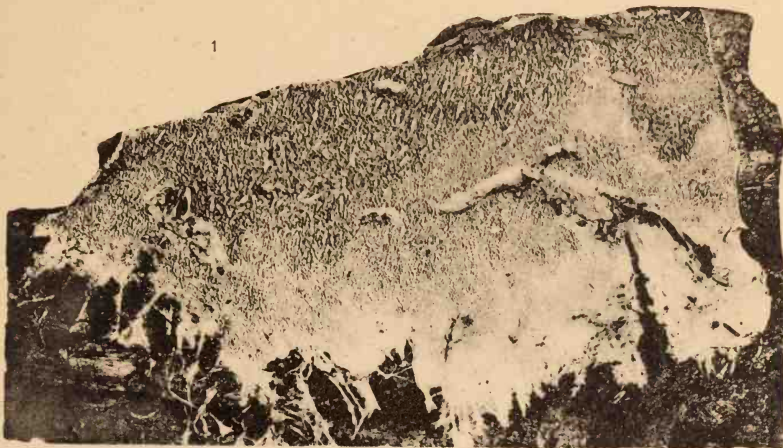
Plate 12

143

Poria myceliosa Peck

- 1 Photograph of specimen from the type collection. x 1.
- 2 Microphotograph of cross section of the hymenium. x 160.
- 3 Hyphae from the trama and the subiculum.
- 4 Mature spores.

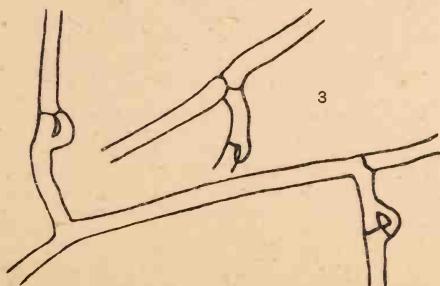
1



2



3



4



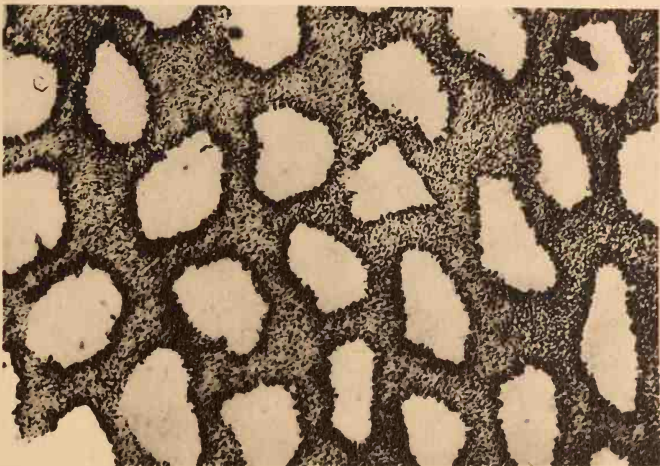
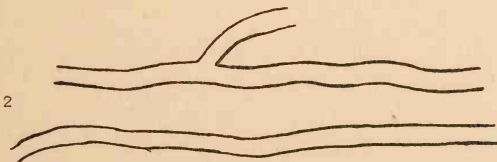
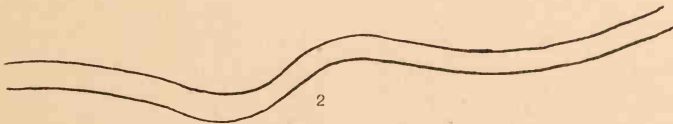
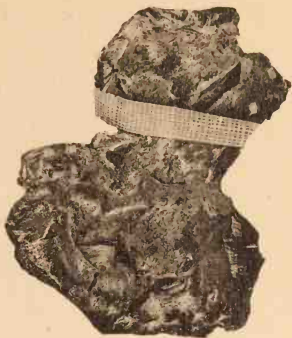
PORIA MYCELIOSA Peck

Plate 13

145

Poria odora (Peck) Sacc.

- 1 Specimens from the type collection. x 1.
- 2 Hyphae from the trama and the subiculum.
- 3 Mature spores.
- 4 Microphotograph of cross section of the hymenium. x 160.



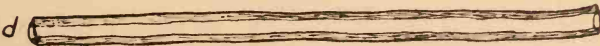
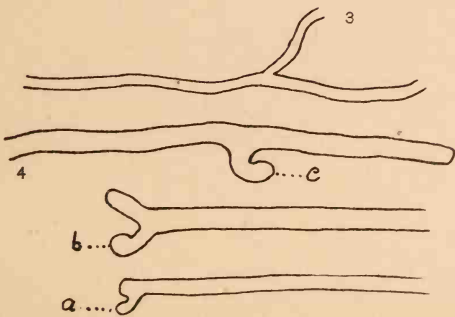
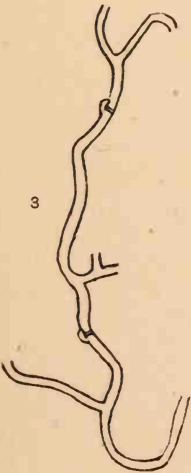
PORIA ODORA (Peck) Sacc.

Plate 14

147

Poria ornata (Peck) Sacc.

- 1 Specimens in the type collection. x 1.
- 2 Microphotograph of a partially oblique section through the hymenium. x 160.
- 3 Hyphae from the trama.
- 4 Hyphae from the subiculum, showing the knoblike outgrowths sometimes present (a, b, c), and the heavy walls characteristic of many hyphae (d).
- 5 Mature spores.



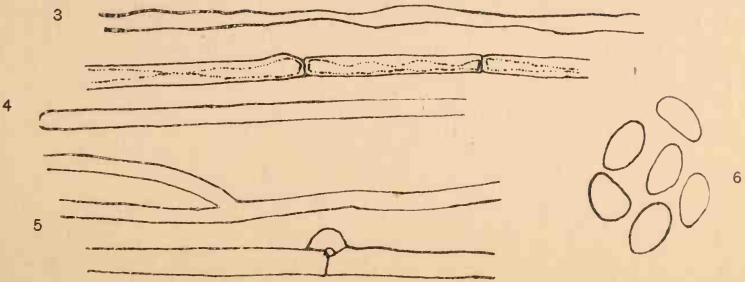
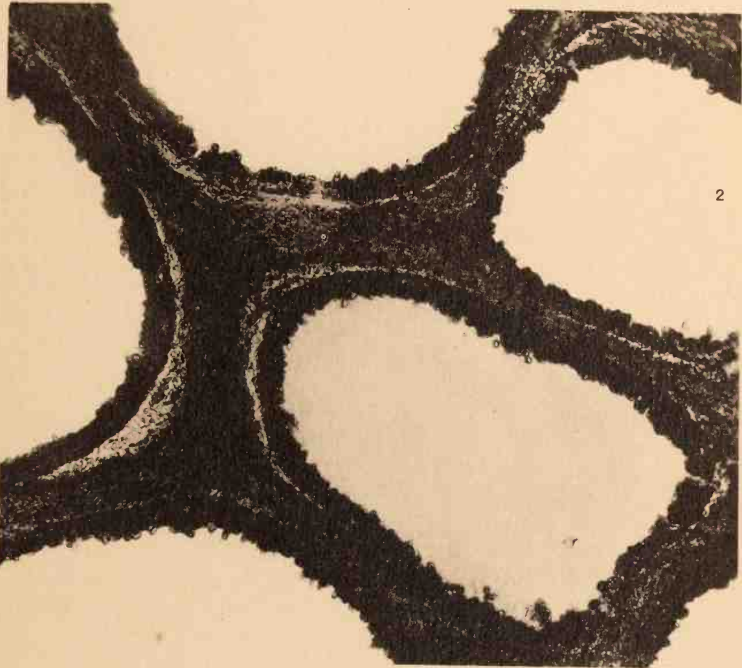
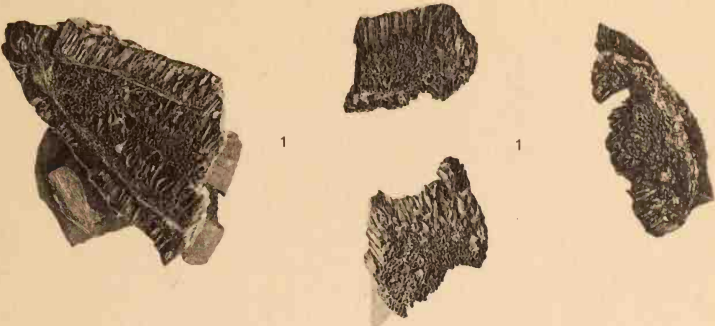
PORIA ORNATA (Peck) Sacc.

Plate 15

149

Poria pinea (Peck) Sacc.

- 1 Specimens from the type collection. x 1.
- 2 Microphotograph of a cross section of the hymenium. Lines of cleavage are apparent between trama and hymenial layers.
x 160.
- 3 Hypha from the trama.
- 4 Hyphae from the trama.
- 5 Hypha from the subiculum, with clamp connection.
- 6 Mature spores.



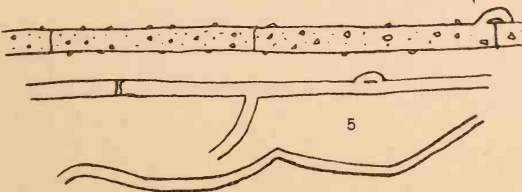
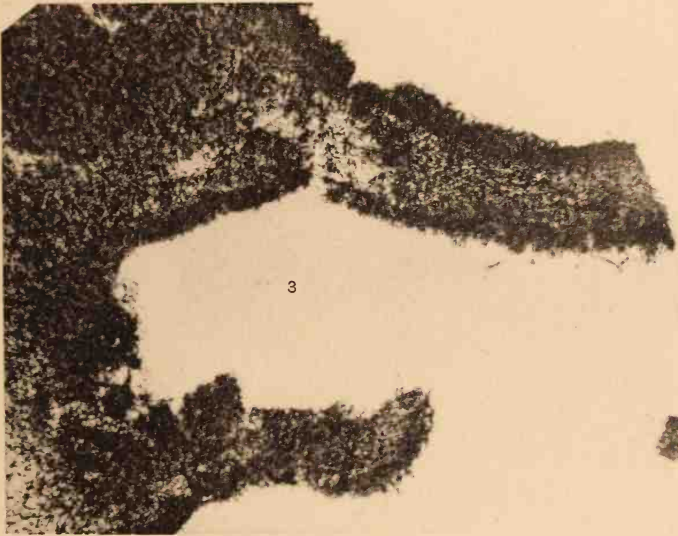
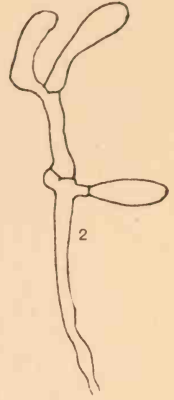
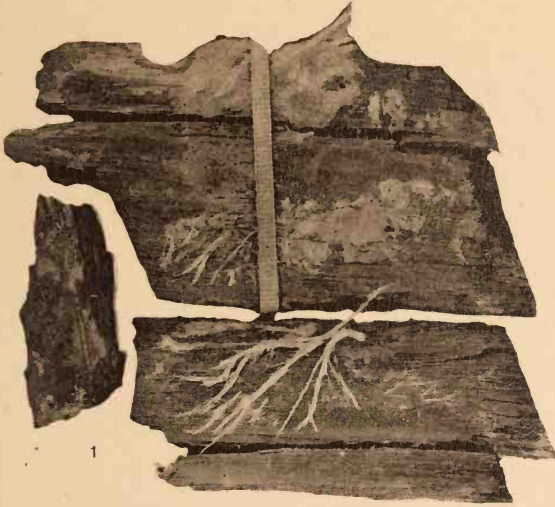
PORIA PINEA (Peck) Sacc.

Plate 16

151

Poria radiculosa (Peck) Sacc.

- 1 Major portion of the material in the type collection. x 1.
- 2 Immature basidia.
- 3 Microphotograph of vertical section through the hymenium.
x 160.
- 4 Hyphae from the subiculum.
- 5 Hyphae from the trama.
- 6 Mature spores.



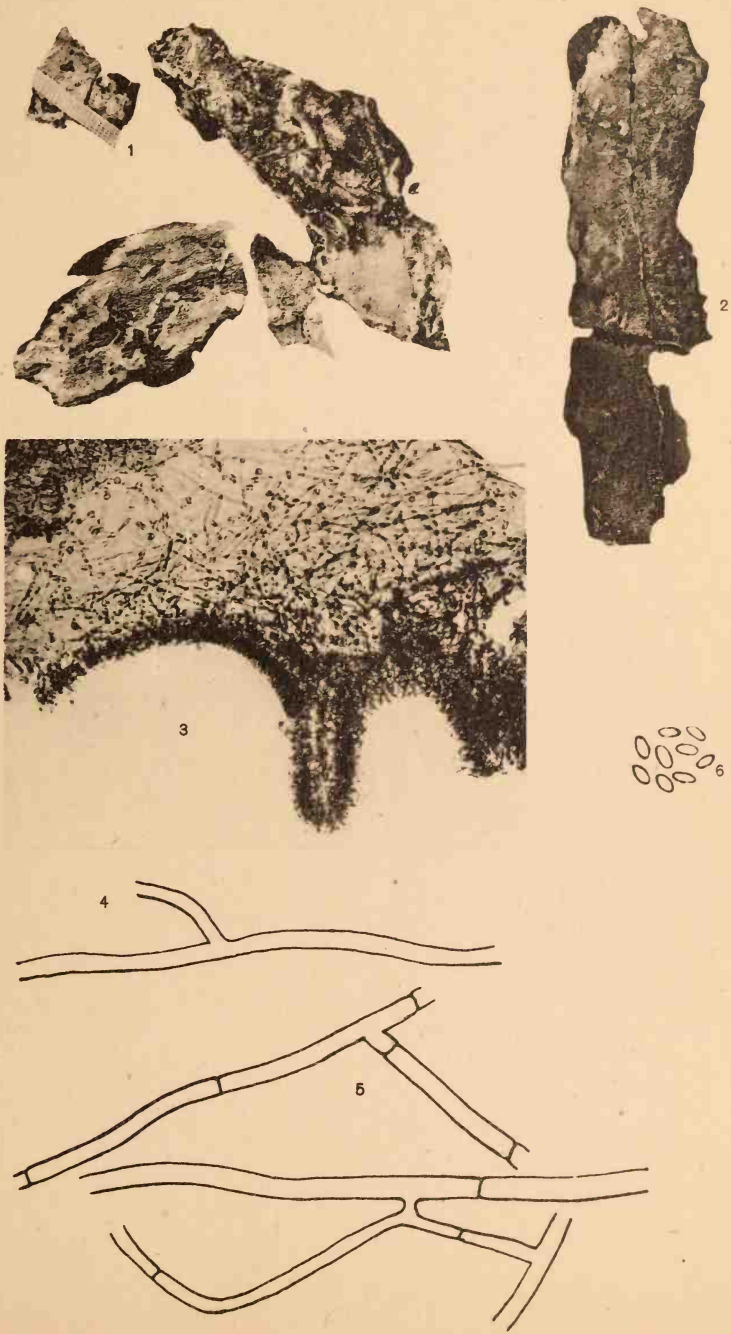
PORIA RADICULOSA (Peck) Sacc.

Plate 17

153

Poria semitincta (Peck) Sacc.

- 1 Specimens from the type collection. x 1.
 - a Growing on the surface of a dead fallen leaf.
 - b Growing on rotten wood.
- 2 Specimen in New York State Museum herbarium, collected at South Bethlehem, N. Y. x 1.
- 3 Microphotograph of vertical section through hymenium. x 160.
- 4 Single hypha from the trama.
- 5 Hyphae from the subiculum and the growing margin. This type also represented in the trama.
- 6 Mature spores.



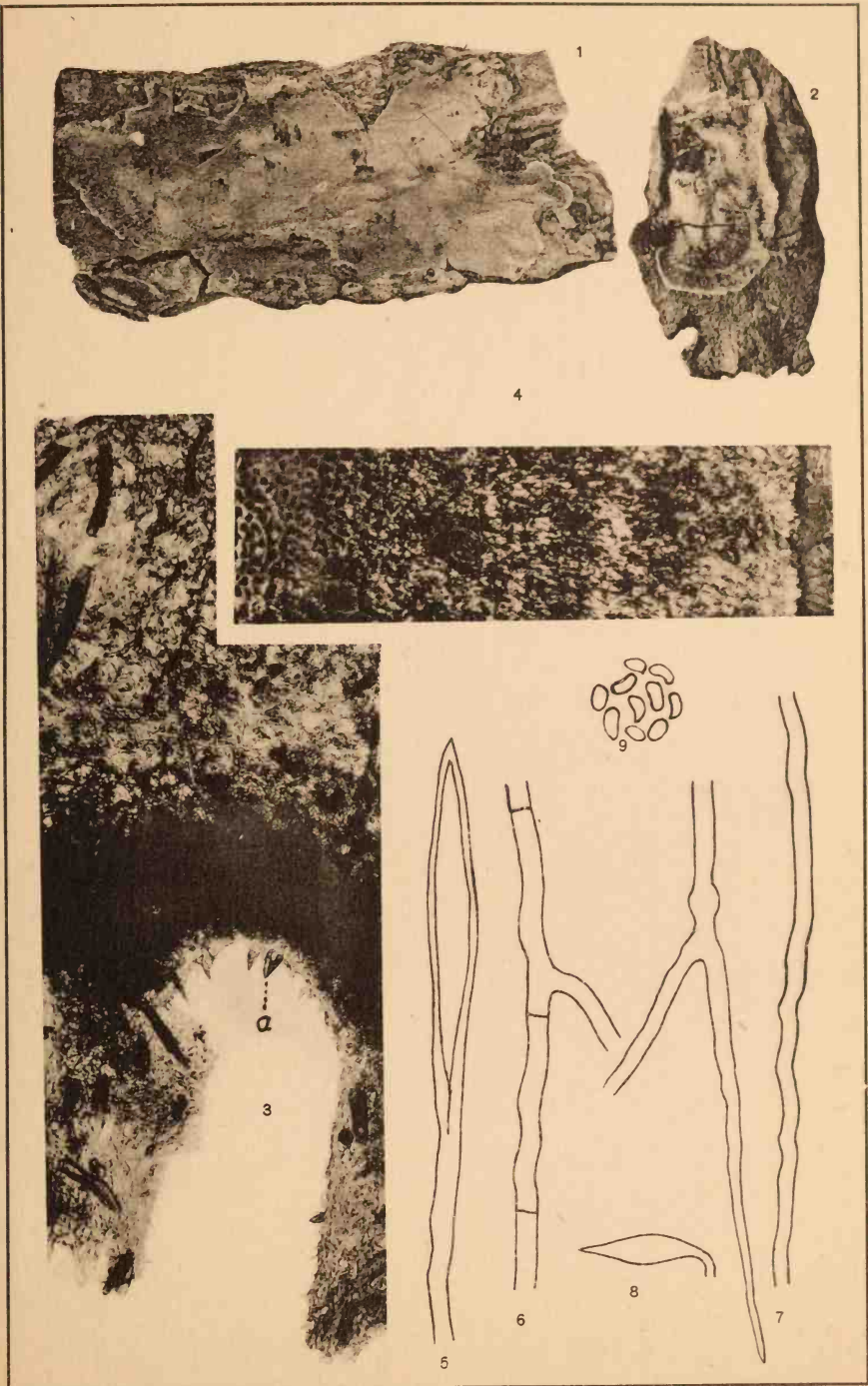
PORIA SEMITINCTA (Peck) Sacc.

Plate 18

155

Poria setigera Peck

- 1 Mature specimens from the type collection. x 1.
- 2 Young specimens from the type collection, showing the broad sterile margin and the covering of hairlike setae. x 1.
- 3 Vertical section through the hymenium and subiculum showing the setalike bodies projecting into the lumen of the tubes and embedded in the trama. At *a* are projecting setae of the usual type. x 160.
- 4 Enlargement of a part of the specimen (at X) shown in figure 2, showing the bristlelike projecting hairs. x 10. Photographed with the aid of a Bausch and Lomb Micro-Tessar lens.
- 5 One of the large embedded setae.
- 6 Hypha from the subiculum.
- 7 Hypha from the trama.
- 8 A small seta of the usual type, from teased preparations.
- 9 Mature spores.



PORIA SETIGERA Peck

Plate 19

157

Poria subacida (*Peck*) *Sacc.*

- 1 Specimen from the type collection. x 1.

Poria subacida var. *stalactitica* *Peck*

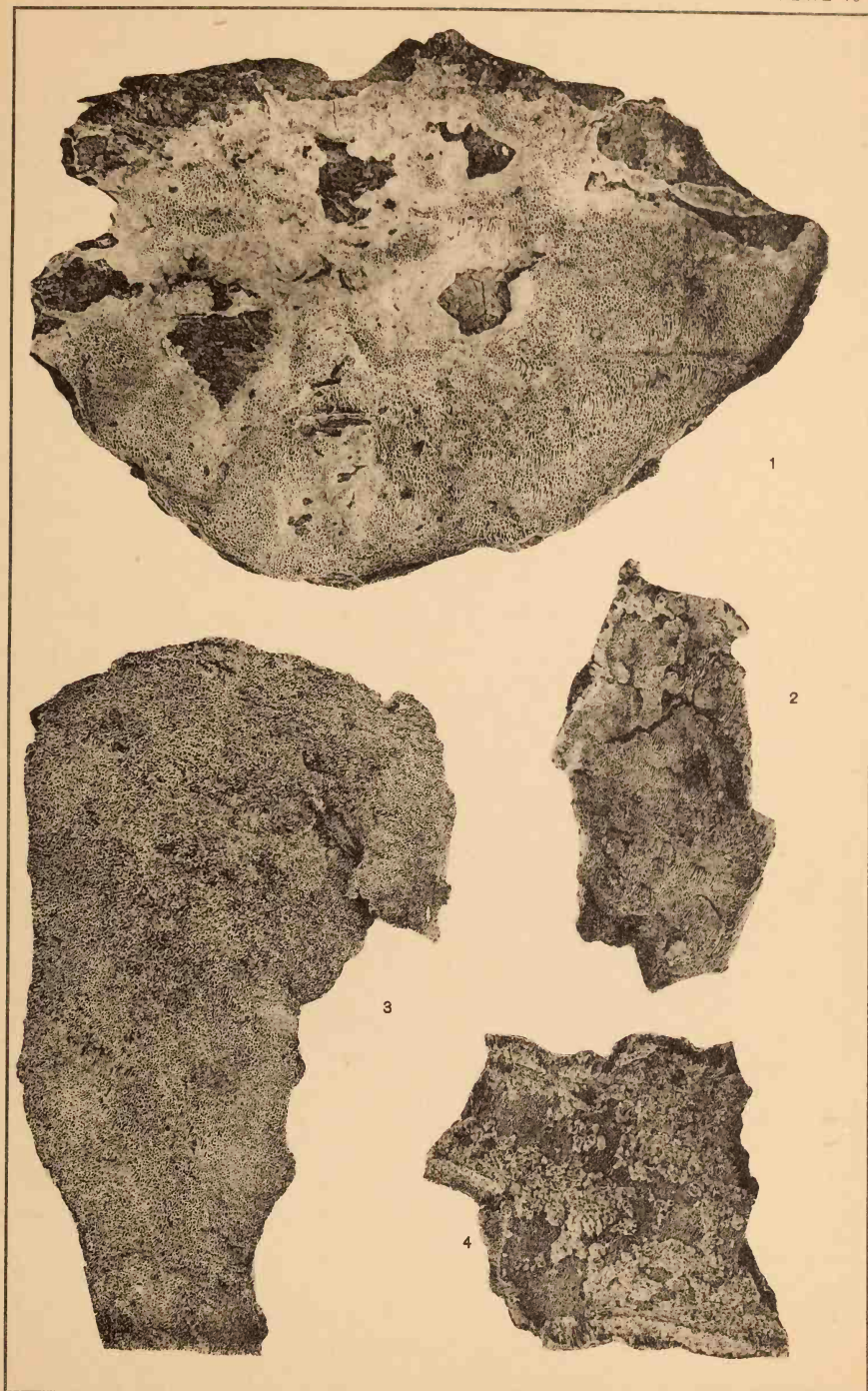
- 2 Specimen from the type collection. x 1.

Poria subacida var. *vesiculosa* *Peck*

- 3 Specimen from the type collection. x 1.

Poria subacida var. *tuberculosa* *Peck*

- 4 Specimen from the type collection. x 1.



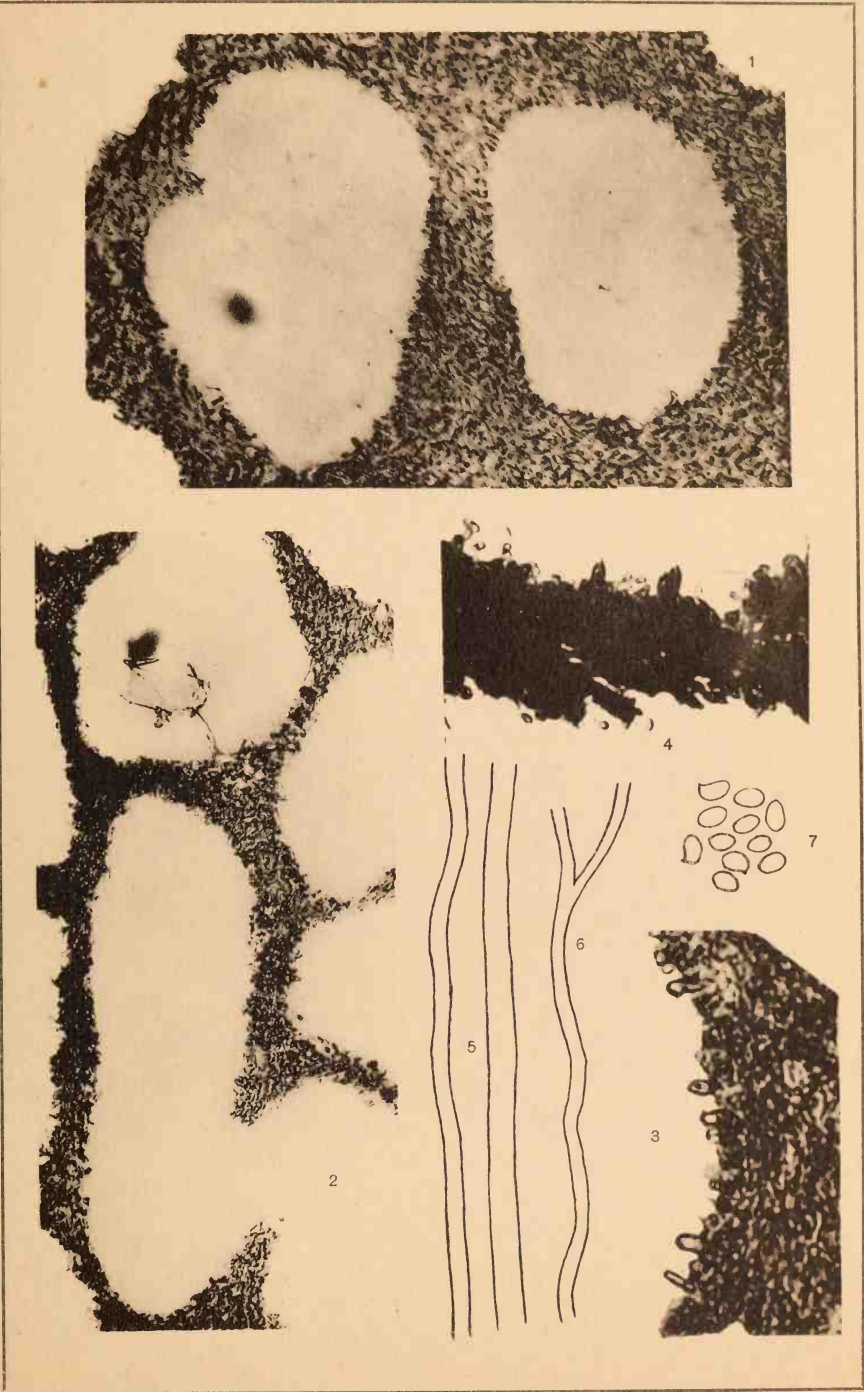
PORIA SUBACIDA (Peck) Sacc.

Plate 20

159

Poria subacida (Peck) Sacc.

- 1 Microphotograph of cross section of the hymenium from specimen in the type collection. x 160.
- 2 Microphotograph of cross section of the hymenium from specimens in the New York State herbarium, collected by C. H. Peck at Floodwood, N. Y. x 160.
- 3 Enlarged microphotograph of a small part of the hymenium of *Poria subacida* var. *tenuis* Peck, from specimens in the type collection, showing projecting cystidialike bodies. x 320.
- 4 Enlarged microphotograph of a small part of the hymenium of *P. subacida*, showing cystidialike bodies. x 320.
- 5 Hyphae from the subiculum.
- 6 Hyphae from the trama.
- 7 Mature spores.



PORIA SUBACIDA (Peck) Sacc.

Plate 21

161

Poria subiculosa (Peck) Sacc.

- 1 Specimen from the type collection. x 1.
- 2 Microphotograph of cross section of the hymenium. x 160.
- 3 Hyphae from the trama.
- 4 Hypha from the subiculum.
- 5 Mature spores.

Poria subacida var. *tenuis* *Peck*

- 6 Specimen from the type collection. x 1.

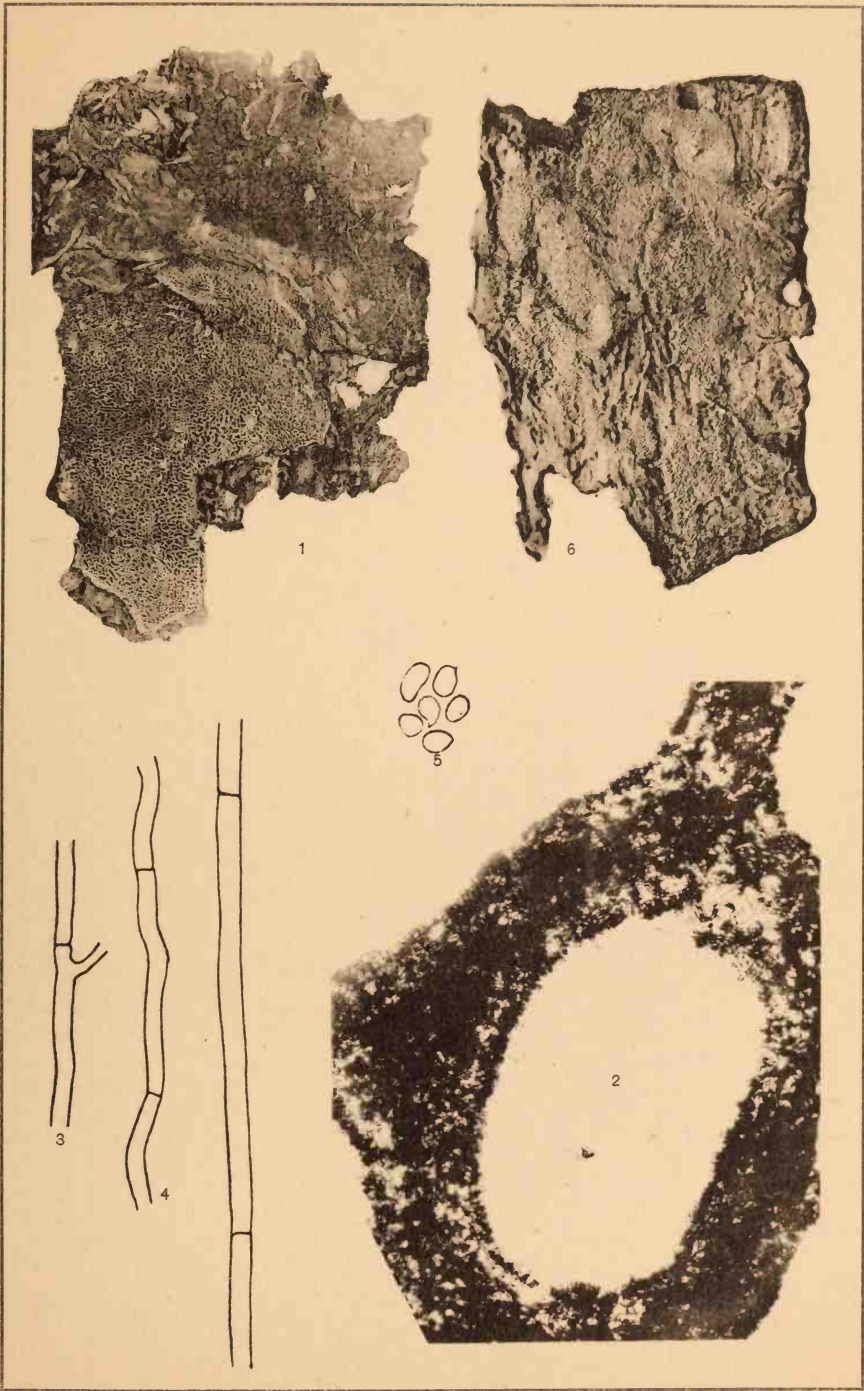


Fig. 1-5 *PORIA SUBICULOSA* (Peck) Sacc.
Fig. 6 *PORIA SUBACIDA* var. *TENUIS* Peck

Plate 22

163

Poria sulphurella (Peck) Sacc.

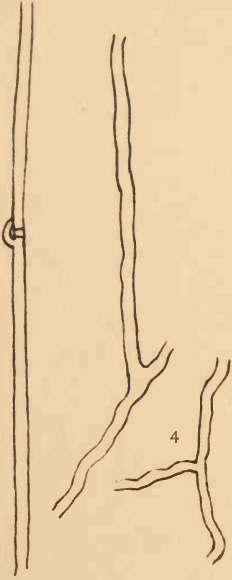
- 1 Specimen from the type collection. x 1.
- 2 Microphotograph of cross section of the hymenium. x 160.
- 3 Hypha from the subiculum.
- 4 Hyphae from the trama.

Poria fimbriatella (Peck) Sacc.

- 5 Specimen from the type collection. x 1.

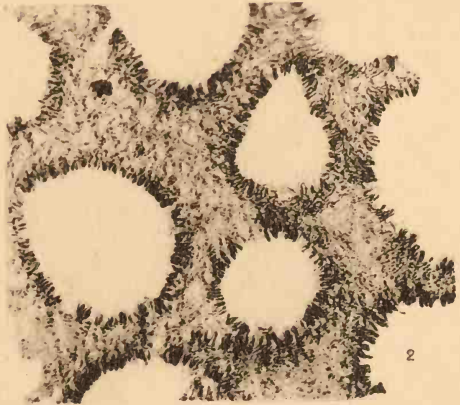


1



3

4



2



5



6

Fig. 1-5 *PORIA SULPHURELLA* (Peck) Sacc.
Fig. 6 *PORIA FIMBRIATELLA* (Peck) Sacc.

Plate 23

165

Daedalea sulphurella Peck

- 1 Photograph of small fragments from the type collection. x 2.
- 2 Microphotograph of vertical section through the hymenium.
x 160.
- 3 Hyphae from the subiculum.
- 4 Mature spores.



DAEDALEA SULPHURELLA Peck

